1954 • SIERRA CLUB BASE CAMPS • 1954

SIERRA CLUB
MDCCCXCII

SIERRA CLUB
WILLIAM E. COLBY
MEMORIAL LIBRARY

796.52
Si 17b
1954
C.3
LC

DEDICATION AND TRIBUTE
TO
OLIVER KEHRLEIN

Base Campers have indeed been fortunate that for 15 years now they have had the opportunity to enjoy the magnificent loyal leadership of Oliver Kehrlein. Base Camp was his brainchild. He dreamed of it, planned it, worked immensely hard and brought Base Camp into being. He carried it on and raised it to maturity as a full-fledged successful activity of the Sierra Club.

Throughout all this period he gave unselfishly and unsparingly of his time, energy and extraordinary ability to make Base Camp as interesting, effective and valuable an activity as could be arranged. His success is shown by the immense number of loyal Base Campers who plan their summers to include an opportunity on Base Camp to recreate their life after the strains of civilization by getting the glad tidings of the mountains.

But just as Muir and Colby had started the High Trips in 1901 to strengthen the work of the Sierra Club in conservation, so Kehrlein always had in mind the higher purpose and conservation idealism that Base Camps could offer to members of the Sierra Club.

He joined the Sierra Club 30 years ago. His energy and ability to help others in brilliant leadership of mountain trips, large and small, summer and winter, many of great difficulty and unusual in character resulted in December 1936 in his appointment to the Outing Committee where he has served loyally and effectively ever since. In 1938 his leadership qualities were recognized by the members of the Sierra Club in electing him to the Board of Directors, a position he has held continuously since that time. In his long service on the Outing Committee and as a member of the Board of Directors he has broadened the scope of the Base Camps so that through his energy, originality and hard work additional Base Camps of high purpose and value are available to members of the Sierra Club.

In 1954 Oliver personally led not only the first 2 weeks of the traditional Sierra 6-weeks' Base Camp, but also a 2 weeks' "Wilderness" camp at CrabTree Meadows high on the western slopes of Mt. Whitney and 2 weeks at the eastern edge of the magnificent controversial Three Sisters Wilderness Area in Oregon.

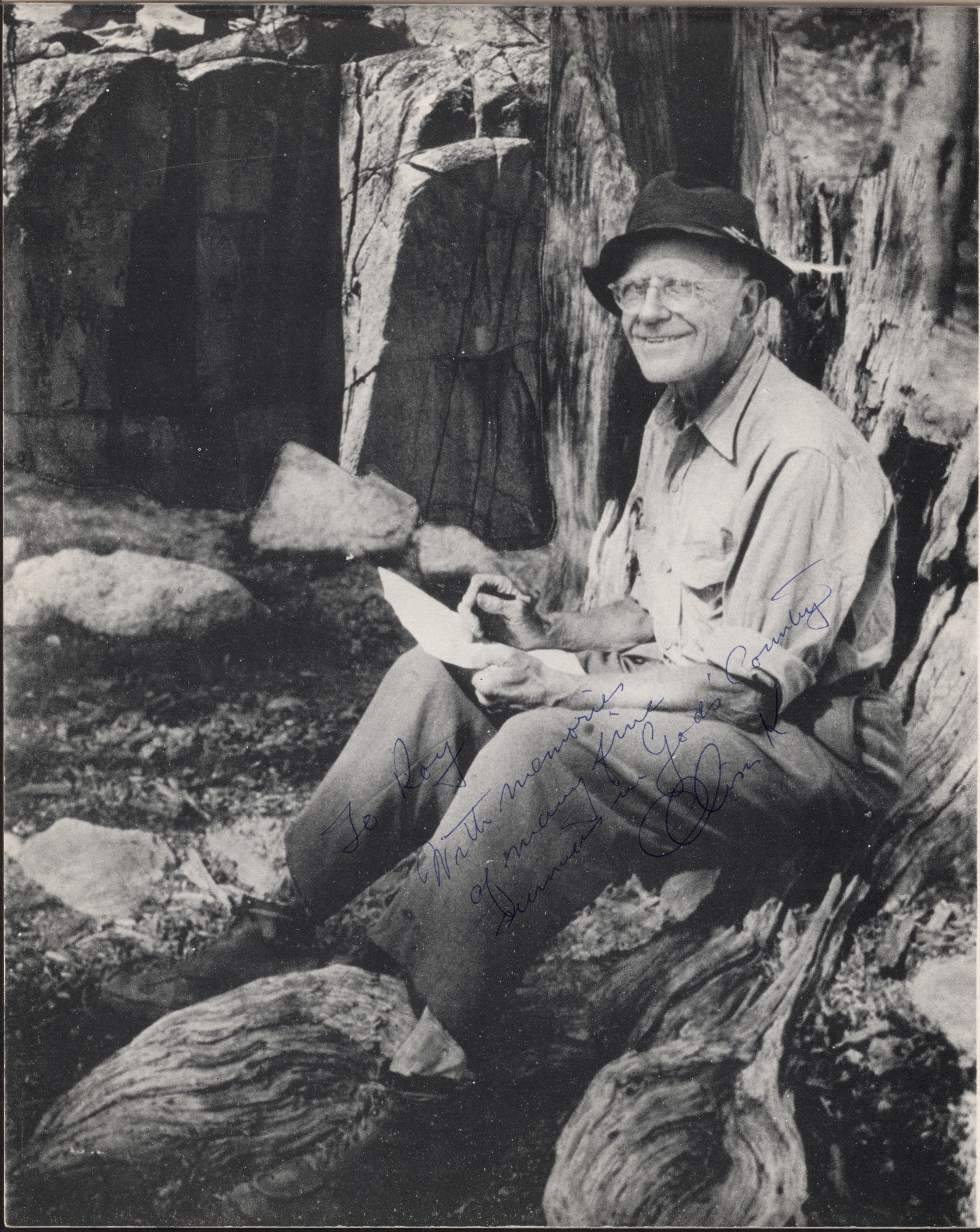
For 1955 Oliver goes on to even broader and more responsible fields of leadership. His careful training and provision for younger leadership on the older trips makes it possible for him to plan and lead a Wilderness Base Camp in the Milestone Basin of the Kern River country of Sequoia National Park, and still go far afield to lead personally the Base Camp at the edge of the flower gardens and fascinating glaciers of Mt. Rainier National Park. Then to a totally new country he will lead Sierra Club members on two 10-day trips through the magnificent colorful Glen Canyon of the highly controversial Upper Colorado River Project.

And so it is that for more than 3 decades Oliver Kehrlein has work with energy, determination and brilliant leadership to provide an ever widening and more important program of enjoyment of the mountains and conservation.

We are proud of his contributions to the Sierra Club and salute him on this 30th anniversary of his service to the Sierra Club.

Richard M. Leonard

Richard M. Leonard, President



To Roy
With memories
of many fine
Summers in God's Country
Olaus

MEET YOUR COLLABORATORS

With the Base Camp growing in numbers and spreading into new fields, your leader and editor misses that oldtime personal contact and takes this opportunity of greeting you and expressing the appreciation of the Commissary group for your cooperation in camp. It is upon this 100% cooperation that the new Base Camp program has been built, and as long as we have it, the Base Camp will continue to be successful. So, we thank you--yes, each one of you personally--for your contribution to the smooth-running of our various camps.

Undoubtedly, the following pages will include mention of many of those who cooperated so wholeheartedly--at least those who happened to catch the recorder's eye. They were not omniscient or they would have included you all, for I am certain that everyone contributed according to his ability. So, please pardon our reporters for any and all omissions. You fill in any omissions in the following pages wherever you feel they are needed and thus complete your personal record. But, due to budgetary limitations, we had to restrict each author--so blame me and not them for any seeming oversights. Oldtime Base Campers will miss many of their favorite items, but they'll understand why. We had to cut somewhere--sorry. However, so that each of you can at least become acquainted with the contributors to this book, we will use this means of introducing them in the order in which they appear in the book.

Your production manager is Fred Smith--veteran Base Camper, and when not basecamping, president of the Polychrome Pacific Corporation whose facilities make it possible for us to publish this book at a minimum of cost. If it had not been for Fred's initiative and persistence, this issue of the Base Camp Book might have been omitted this year.

Ably assisting him with all of the details of sending out cards, checking, typing, mailing, etc., also our perennial camp nurse and general helper, Catherine Feeney.

To Jim MacBride goes a lot of credit and appreciation. He took many of the exceptional pictures in this volume, as well as in many previous issues. He is responsible for the spectacular cover--as he has been for several covers before. And above all, Jim patiently reviewed hundreds of photographs and negatives. Printed and reprinted many of them time and time again in his search for perfection. Since this volume will be a picture-rather than word-record of the 1954 Base Camps, to Jim goes a great deal of the credit for the success of this book.

Peter Friedrichsen--the dearly beloved Campmaster and participant of every Base Camp since its inception in 1940--again acts as art editor. He also did the drawings for the Third Bear Creek Base Camp--and did his usual professional job.

The author of the first report is Edgar Kahn. He needs no introduction here as his writings are well known the nation over. It was his authorship of "Cable Car Days" that revived interest in these ancient vehicles and brought world-wide publicity to San Francisco.

Miriam Field, reporter for the second session in Bear Creek (although a first baseman) assumed a tough job in reporting its doings, and did it as well as a veteran.

Ruth Aiken is so well known for her conservation work for the Sierra Club, and has done so much for the Los Angeles Chapter, that we felt it an imposition to ask her to take on this further chore. As might be expected, she has accredited herself well in her "Base Camp Can Be Fun"--the report for the third Base Camp session.

The author of the Crabtree Camp report, Lanky Lanquist, brought a fresh slant into Base Camp and incorporates it in his article. He flew to Bear Creek from warm and colorful Hawaii and seemingly he didn't object to our rugged way of life--for he stayed on and went to Crabtree with us. There he got the works: wind, rain, deluge and a real snowstorm. He's coming back for more next year!

Every Sierran knows Cicely Christy and the wonderful work she has done for the club in every department. Cicely has been the mainstay and backbone of every committee she has worked on, so they have made her the chairman of the committee on committees. She put that same enthusiasm into her participation in the camp activities and shows it in her report "Base Camp Goes to Oregon."

Base Campers are fortunate in having Helen Sharsmith choose her "Botanist's Dozen" wildflowers in answer to their unspoken request. Helen is a real botanist--in the mountains and at her daily work at home. She has described her "dozen" in a way that will make you remember them next year, and for many years to come. She will be one of our camp naturalists in 1955.

Jim Koontz and Hervey Voge co-authored the "Mountaineering Notes." Their first love is climbing; their next--helping others to do the same. Jim started climbing in the 1946 Base Camp and has been climbing ever since. Hervey started way back--when rockclimbing in California was just beginning. He is chairman of the club's mountaineering committee.

As for my own article on the Kern, I'm interested in the Geomorphology (the antecedents) of the Sierra, and want others to know and understand what's behind the scenery we're fighting for. So, if you want to know how that unique basin of the Kern came to be, read the article. If not, skip it. One function that this article will serve is to continue the project started years ago, of covering as completely as possible in each Base Camp book, some one region in the Sierra.

As for our artists, they certainly speak for themselves. If we left out all the written matter, their wonderful sketches (and the photographs) would make this volume well worth the subscription.

Glady Janoff has caught the spirit of the Crabtree Camp "better than a thousand words" could have. Incidentally, she was our Stub-Camp hostess and cook and did a swell job with the pots and pans.

Inimitable Ethel Nelson saw fun in everything that happened in camp and brought it all back again with her ten pages of comics. She and Ivy Foster co-emceed our campfires which had comedy aplenty as well as good, solid meat.

Carrye Opton is with us again and brings to her art that austereness and boldness so typical of the northern-scenery. Her pictures are worth clipping and framing.

As for Lee Wolff, this is her first appearance in the Base Camp Book. She, like Lanky, comes from Hawaii and brings with her a daintiness and an appreciation of the beautiful. These rare qualities pervade her sketches and we look forward to her doing more of this type of work on a broader scale in future years.

And, finally, we have thoroughly enjoyed all of the shorter poems, songs and articles, and know you will too--thanks to Scudder Nash, George Agoston, and all the others whose names we may have missed.

Oliver

OLIVER KEHRLEIN

BASE CAMP HISTORY

Nineteen hundred and forty-seven
The Palisades were just like Heaven!
The Palisades were just like Heaven
For all of us at Base Camp.

Chorus:
Patsy-ory-ory-ay,
Patsy-ory-ory-ay,
Patsy-ory-ory-ay,
Hiking in the mountains.

Nineteen hundred and forty-eight
We camped beneath the East Vidette.
We camped beneath the East Vidette -
It was a job to get there!

(Chorus)

Nineteen hundred and forty-nine
Mitre Basin sure was fine.
Mitre Basin sure was fine
For all of us at Base Camp.

(Chorus)

Nineteen hundred and fifty
Dingleberry looked good to me.
Dingleberry looked good to me
So I went to Base Camp.

(Chorus)

Nineteen hundred and fifty-one
Lake Ediza was lots of fun!
Lake Ediza was lots of fun
For all of us at Base Camp.

(Chorus)

Nineteen hundred and fifty-two
Evolution meant lots to do.
Evolution meant lots to do
For all of us at Base Camp.

(Chorus)

Nineteen hundred and fifty-three
In Second Recess I skinned my knee.
In Second Recess I skinned my knee
But it was swell at Base Camp.

(Chorus)

Nineteen hundred and fifty-four
We learned a lot of Bear Creek lore.
We learned a lot of Bear Creek lore
Way up there at Base Camp.

(Chorus)

The Publication of the

1954 BASE CAMP BOOK

was made possible by

Oliver Kehrlein	Editor
Fred H. Smith	Production Manager
James MacBride	Photographic Editor
Peter Friedrichsen	Art Editor

AUTHORS

Edgar Kahn, Miriam Field, Ruth Aiken, W.J.Lanquist, George Agoston,
Cicely M. Christy, Helen Sharsmith, Jim Koontz, Oliver Kehrlein

ARTISTS

Gladys Janoff, Ethel Nelson, Carrye Opton,
Alice Wolff, Peter Friedrichsen

SPECIAL ASSIGNMENTS

Catherine Feeney, Rose Lewis, Mildred Carlson

COLLABORATORS

Vivian Dahl, Sumi Haramaki, Diana Jensen, Leona Kutzen, Elizabeth Lockwood,
Nancy McCabe, Roy Pike, Mirra Scaparone, Elizabeth Smith, Jeff Smith, Warren Wolff

Special Mention: For the cover, James MacBride's picture of "Frozen Lake in the Crater of the South Sister"; and to the Janoffs for the picture "Atop Mt. Whitney" on the back cover.

TABLE OF CONTENTS

Page

BEAR CREEK BASE CAMP

FIRST SESSION

First Group of Photographs

Report -- by Edgar Kahn 7

Second Group of Photographs

Comic Strips by Ethel Nelson 14

Third Group of Photographs

SECOND SESSION

Report by Miriam Field 17

Fourth Group of Photographs

A Botanist's Dozen -- by Helen Sharsmith 23

Fifth Group of Photographs

THIRD SESSION

Report by Ruth Aiken 29

Sixth Group of Photographs

Page

WHITNEY-CRABTREE BASE CAMP

Report by W. J. Lanquist 35

Seventh Group of Photographs

Sketches by Ethel Nelson 46

Eighth Group of Photographs

Mountaineering Notes by Jim Koontz 57

Nineth Group of Photographs

OREGON BASE CAMP -- THREE SISTERS

Report by Cicely Christy 63

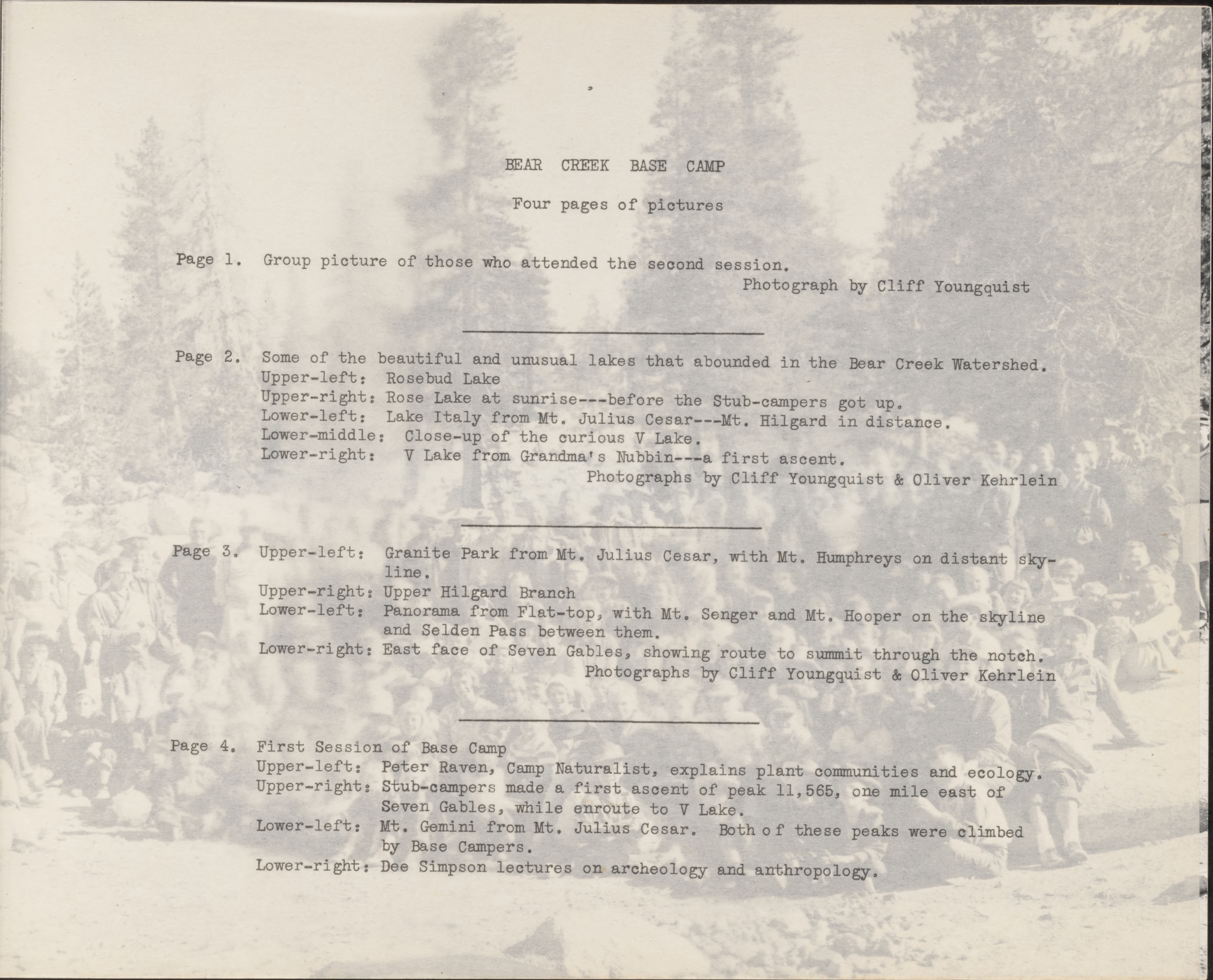
Tenth Group of Photographs

Odes by George Agoston 71

Kern Basin Photographs

Kern Basin is Unique by Oliver Kehrlein 75

Personnel Lists in the Appendix



BEAR CREEK BASE CAMP

Four pages of pictures

Page 1. Group picture of those who attended the second session.
Photograph by Cliff Youngquist

Page 2. Some of the beautiful and unusual lakes that abounded in the Bear Creek Watershed.
Upper-left: Rosebud Lake
Upper-right: Rose Lake at sunrise---before the Stub-campers got up.
Lower-left: Lake Italy from Mt. Julius Cesar---Mt. Hilgard in distance.
Lower-middle: Close-up of the curious V Lake.
Lower-right: V Lake from Grandma's Nubbin---a first ascent.
Photographs by Cliff Youngquist & Oliver Kehrlein

Page 3. Upper-left: Granite Park from Mt. Julius Cesar, with Mt. Humphreys on distant skyline.
Upper-right: Upper Hilgard Branch
Lower-left: Panorama from Flat-top, with Mt. Senger and Mt. Hooper on the skyline and Selden Pass between them.
Lower-right: East face of Seven Gables, showing route to summit through the notch.
Photographs by Cliff Youngquist & Oliver Kehrlein

Page 4. First Session of Base Camp
Upper-left: Peter Raven, Camp Naturalist, explains plant communities and ecology.
Upper-right: Stub-campers made a first ascent of peak 11,565, one mile east of Seven Gables, while enroute to V Lake.
Lower-left: Mt. Gemini from Mt. Julius Cesar. Both of these peaks were climbed by Base Campers.
Lower-right: Dee Simpson lectures on archeology and anthropology.

FIRST SESSION of Base Camp

by Edgar Kahn

Seventy-five campers, of all ages and walks of life, answered the call of the High Sierra to return to the world of nature and live again the simple life.

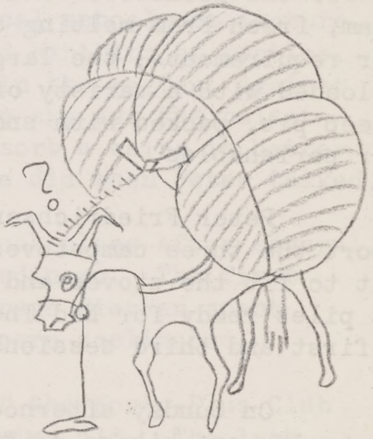
For two eventful weeks our link with civilization was severed. We relied on foot power to transport us to distant peak, meadow and lake. We depended upon water-repellent tents and sleeping bags to protect us from the elements.

We learned that the first wealth is health in the out-of-doors. To get it, for fourteen days, we left the comfort of our dwellings and the complexity of urban living, and substituted the majestic grandeur of the wilderness.

Few base-campers have any conception of the planning and negotiations required to organize a camp such as Bear Creek Base Camp. For example, upon Oliver's early arrival at Mono Hot Springs he was confronted with three major and immediate problems.

National Forest Ranger Snyder requested that we not camp near the John Muir Train, because of the size of the Sierra Club party and the duration of the base-camp. Pending Oliver's approval he had selected a favorable site on Hilgard Branch. The camp site previously chosen on Bear Creek was thus replaced by one five miles further on.

Packer "Shorty" Cunningham objected that the Hilgard site was too far for the packtrain to travel in one day.



But the final and toughest problem was that the distance which the hikers had to cover was too great for the first day.

After reaching a compromise with Ranger Snyder, his campsite was accepted. Further tact was required to win Packer Cunningham's approval, and finally a shorter route was worked out for the hikers.

After conferences with officials of the Bechtel Company and long-distance calls, the advance party went in to set up camp. The campsite was found suitable. Peter Friedrichsen was on the job and had already done considerable work. The time was short and much remained to be done. Oliver returned to Mono Hot Springs to work out numerous details, greet the basecampers as they arrived, and lead them to the camp on Sunday, July Fourth.

At advance camp everyone was pressed into service, and with the first arrivals everything was in readiness.

There were ample sites for families, couples, single men and women to make their individual camps, and thus a full community was comfortably accommodated. There was plenty of wood for the cookstoves and various fires. The stream, fresh from melting snows and lakes, met our water requirements; the large commissary tent was overloaded with a variety of provisions. In a nearby deep pit, packed with snow, was stored meat and other perishables.

Peter Friedrichsen laid a stone base to support the three campstoves. Logs were cut and split to fit the stoves and neatly stacked in long neat piles ready for Ned Thompson, the cook for the first and third sessions.

On Sunday afternoon the horseback riders, pack train, and hikers drifted into camp, showing the effects of varying degrees of fatigue. They were checked in by Catherine Tarnowsky.

The Hilgard Branch proved to be a superior site. Its higher elevation, 9,600 feet, placed it nearer the climbs and lakes. Camp was set up in a forest of lodge-pole pines. These hardy trees swayed gently with the warm daytime breeze and persuaded us to live with them and to forget the life of trifles we had left behind. We became absorbed with the massive landscape and the new views which ushered in fresh thoughts until, by degrees, our recollections of city life were crowded out of mind. We even lost our own importance!

To the east Mt. Hilgard overtowered, 13,271 feet into the blue horizon. This bold mass of broken granite was named after Eugene W. Hilgard (1833-1916), said to have been the father of scientific agriculture in California.

At campfire that first night Oliver, in his usual capable manner, congratulated the group upon arriving in camp in good condition and with no blisters. He said, "You hiked for seven hours, covered fifteen miles, and you proved you have the stamina to do it."

Oliver paid a tribute to William Colby, the father of the Sierra Club outings, and referred to him as a man of character, as great a conservationist as John Muir. Mr. Colby had established the first base camp in 1901. It was not until 1940 that the present base camp idea was revived.

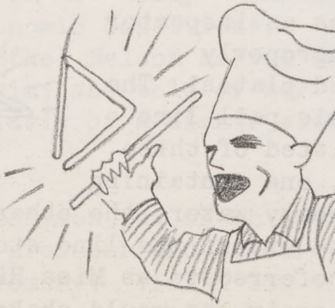
Oliver has been the leader and continues in that capacity. He has over 60 years of mountaineering experience. His secret as a base-camp leader is founded upon the idea that everyone must share the work; cooperation is the keynote of the base-camp, and consists of seeing things to be done and doing them.

An example of over-cooperation was evidenced by a first baseman who split the wood-chopping block and fed the sections to the cook stoves! Another enterprising citizen walked off with the camp pliers, and for several days the pincers could not be located.

Oliver introduced the leaders - Ned Thompson, cook par excellence; Jim Koontz, intrepid mountaineer; Bill Evans, trailmaker; Peter Friedrichsen, fisherman and experienced mountaineer, who had attended all previous base-camps.

The idea back of Base Camp is to give the members an opportunity to explore, conquer the peaks, and visit the out-of-the way lakes. The area also proved a fisherman's paradise as the streams and lakes were stocked with golden trout ranging from seven to fifteen inches.

At six-thirty on Monday morning just as the sun's first rays lightened the granite walls, we were awakened by Ned Thompson's booming voice. "Get up. Get up. GET UP." We did, but the symphony of rushing water which had brought slumber the previous nigh, rushed on undisturbed.



The day was passed in relaxation and orientation talks. In the afternoon Oliver talked on first-aid in the mountains, covering such subjects as bleeding, shock, fractures, wounds and artificial respiration. For those interested in learning the techniques of rock climbing and how to use ropes, Jim Koontz and Glen Dawson conducted two classes.

Camp Naturalist, Peter Raven, on two occasions conducted field trips, with fifty-two attending the first and forty-eight present for the second expedition. Peter's youthful enthusiasm and botanical knowledge, and the methods he used to interpret the living world around us made the nature walks worthwhile.

His was no mechanical schoolroom lecture. He had as accessories mounted exhibits of beetles, butterflies and flies found in the region, against a background of open air, the sky and the pulsating currents of life. To absorb a thing is better than to learn it, and this we did when Peter talked.

The change which took place after several days in base-camp was extraordinary. The first three or four nights the average Sierran spent restlessly. Gradually he became acclimated.

To those members of the Forty-Plus Club there was the feeling of growing old. The legs were willing but the heart was not. The feet seemed to lose their striding joy. Where each step had been a pleasure, not it was easier to climb mentally those distant peaks.

There was lost also the desire and pride of bathing in the swift-moving mountain stream, just set free from melting snow. The nights seem colder and the dawn takes longer to arrive, after one has spent an uncomfortable night in a sleeping bag. These were the visible signs of growing older.

A PERFECT ICE BAG?

The question has frequently been asked by people who have never experienced an outing, "Why go to the mountains; why give up comforts at home and endure hardships?" To many, the full fruition of enjoyment and delight is when, without purpose, we relax near the earth and sky; when we try to learn some of the mysteries of nature; when there is everything to gain.

As the days in Bear Creek Base-Camp rolled by everyone became more congenial, more intimate. The mountains grew upon us, as did the beautiful surroundings of camp. Then there were the memories of the cracking and spurting of pine logs from the campfire, the embers reduced to ash and finally dying out.

There were dozens of scenes difficult to describe, such as the sun's rays shimmering on bouncing water like fireworks of diamonds. Who could ever forget the scintillating stars as they emerged from behind sunset clouds?

Time proved Ned Thompson one of the most interesting, unpredictable personalities in camp. Ned's days were long and arduous. The crack of dawn found him busily preparing breakfast and coffee. At dinner time he gaily encouraged his customers to eat heartily. His voice would boom out, "Seconds on steaks. Come and get 'em! Up here they're free! Down below you'll have to pay for them!"

When the chocolate pudding moved slowly he taunted everyone in a voice heard all over the commissary area, "What's wrong with my quivering death?" At night after campfire he treated us all to hot chocolate.

At campfire Oliver and Sherwin Dorris tried in simple terms to explain the geology of the region, the evidences of change wrought by time. Around the camp sites were four examples of erosion - water, vegetation, wind action and glaciers. We were told that the ground upon which we slept was once rock over which ice had crept slowly but irristibly down the Hilgard Branch to Bear Creek.

One we'll all remember is eleven-year old Ginny Glass, and particularly the manner in which she carried out her duties as inspector of improperly washed plates! The chickie pail line consisted of three tubs, one containing hot soapy water, the others hot clear water. At the end of the line stood Ginny, and she was referred to as Miss Hitler. Time and time again she would shake her head, and the

holder of the plate would have to start in anew at the beginning of the line and rewash his plate. Ginny showed no favoritism, and from this writer at least she earned his admiration. Irrespective of her age and size, everyone did cooperate with her.

The duties of masters of ceremony at campfire were carried out by Ivy Foster and Ethel Nelson. They lent not only humor, but were able to locate excellent talent. A well directed campfire program is part of the life of base-camp. They were assisted by Gerald Gass, who was in charge of "lost and found", and it was amazing the number of things he was able to locate!

Some of the highlights at campfire were Newton Bell's talks on Africa, as a result of his eight month's stay in that country. Glen Dawson spoke on Henry Huntington and the Huntington Library. His presentation was of a high order. Dan Popper gave a popular talk on astronomy. The writer spoke on the background of material for "Cable Car Days in San Francisco."

Ruth Dee Simpson presented a scholarly address on Indian archeology. Sherwin Dorris spoke on his hobby - weather forecasting and astronomic conditions. During World War II Ethel Nelson served with the Red Cross in Persia; she told of her experiences, particularly of a dinner with a desert sheik.

The first basemen put on an evening with John Shayman as producer and Richard Reid as master of ceremony. Vivian Tow in her skit "Chalk Talks" carried off the evening with a very clever presentation.

At the final campfire Oliver spoke on the Sierra Club's interest in conservation, with special reference to Dinosaur, and told of the fight the Club is putting up against the Echo Park Dam in the Upper Colorado Basin.

One of the most enjoyable walks was the ascent of Flattop (Grandma's Nubbin), 11,336 feet in elevation, with Oliver leading a small party from one ledge to another - a difficult task as there was neither a trail nor ducks to follow. The peak was reached at noon, where sherbet was made at a nearby snowbank.

As an interesting way to return, Peter Friedrichsen led a small group by leisurely zigzags to a mountain meadow below an amphitheater nestling under Mt. Hilgard. A meandering brook made its way through the meadow before dropping off the ledge and emptying into Hilgard Branch.

The weather during the outing was just what the gods, in a non-wrathful mood, might have ordered.

One of the memories of Base Camp is basking in the sunshine on the grassy banks of Hilgard Branch. After an interval, sufficient courage would be mustered for a quick swim in the creek and a slower dry-off by the sun's rays.

But the evening of the 15th brought clouds, thundercaps and rain. It was rather a dejected looking group of campers who lined up before the commissary stoves and waited to be served at

dinnertime. They downed their meal and then hastily put up tarpaulins. The rain had purity and freshness; only momentarily did it dampen our spirits.

Friday was another beautiful day, and the 1954 Bandana Show was conducted successfully under the chairmanship of Mary Helen Dawson. Dorothy Coleman took first award in the art show.

At campfire that night, silver cups were awarded to the following individuals for special service to Base Camp:

Dorothy Parker, who faithfully performed her duties as camp nurse.
Angie H. Irwin for preparing and supervising lunches.
Sue Ann Murphy for preparing coffee, which required early rising on her part.
Mary Helen Dawson for universal cooperation around camp.
Ethel Nelson for serving as a co-master of ceremony and nurse.
Ida Foster for serving as co-master of ceremony.
Glen Dawson for mountaineering leadership.
Edgar M. Kahn for cooperating everywhere.
Donald Bull for sawing, wood chopping, and leading group singing.
Kenneth E. Kahn for helping in commissary, wood chopping and campfire singing.

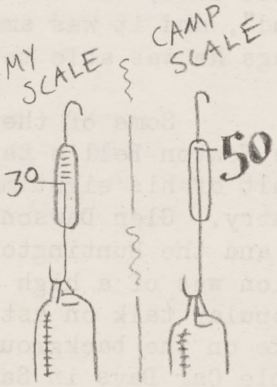
Oliver gave red feathers to the little leaders - the three Dawsons, Keith, Karen and Susan; John Belmont, Ginny Glass and Roger Popper.

He concluded with a word of appreciation for the fine cooperation given by all, and especially by the first basemen.

Then various representatives spoke on local chapter activities: Lillie Stanley on Fresno Chapter, Walter Henninger on Los Angeles Chapter, Eugene Miller on San Diego Chapter, Ethel Nelson on Riverside Chapter.

Ivan Tarnowski closed the campfire with "A Tribute to Oliver". He recognized Oliver's qualifications for leadership, the planning which went into Base Camp, and the long years of devoted service to safety and conservation. The talk was timely and inspiring, and at the conclusion the entire group stood and applauded.

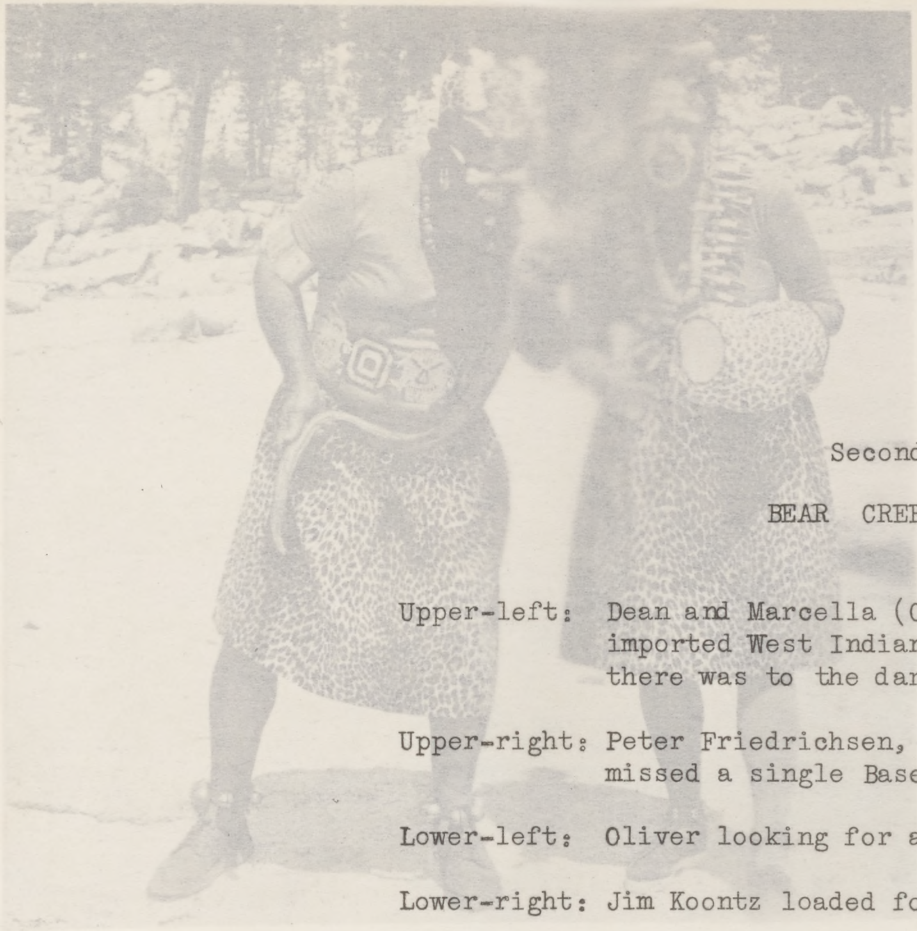
At 5:30 a.m. Saturday, the 17th, the first two-week campers answered an early morning call, weighed in their dunnage bags, ate a hearty breakfast, and started down the long trail for Mono Hot Springs and home.

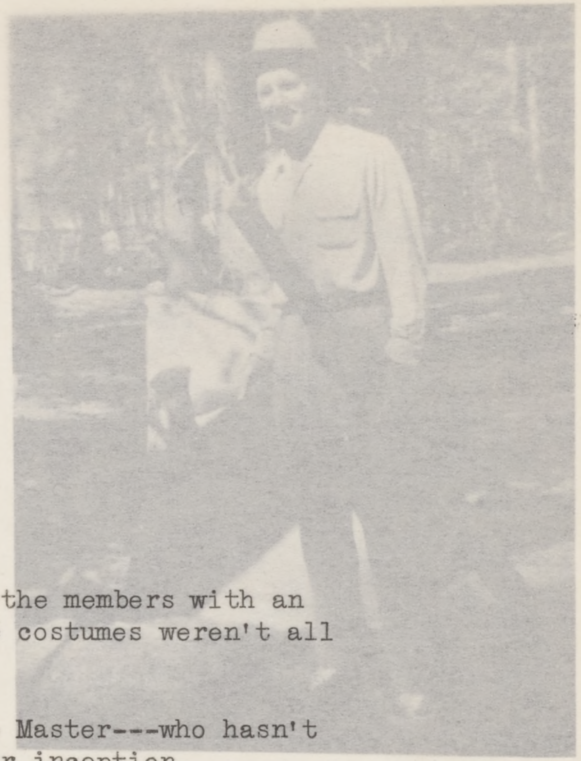


Now that we have had a chance to reflect upon our two week's experience at Bear Creek Base Camp, we know that we carry in our hearts many memories of those remote and rugged regions.

The life of the outdoors gave us the capacity to enjoy common things. We went for enjoyment and companionship - we found them and more.

We were able to appreciate the beauty of the wilderness area without





Second Session

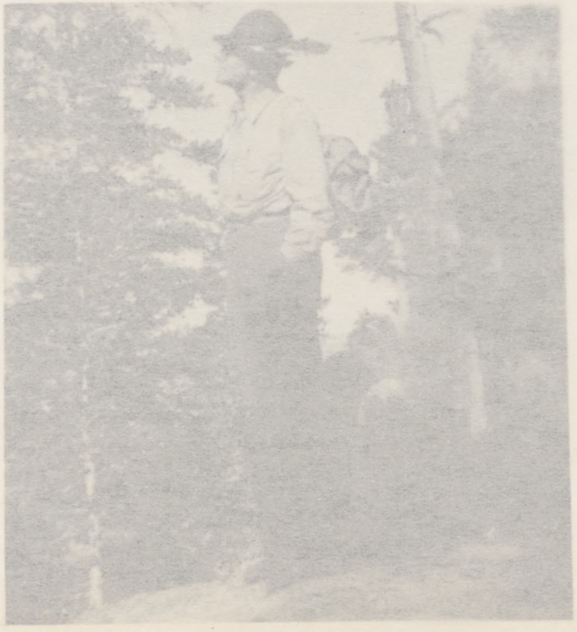
BEAR CREEK BASE CAMP

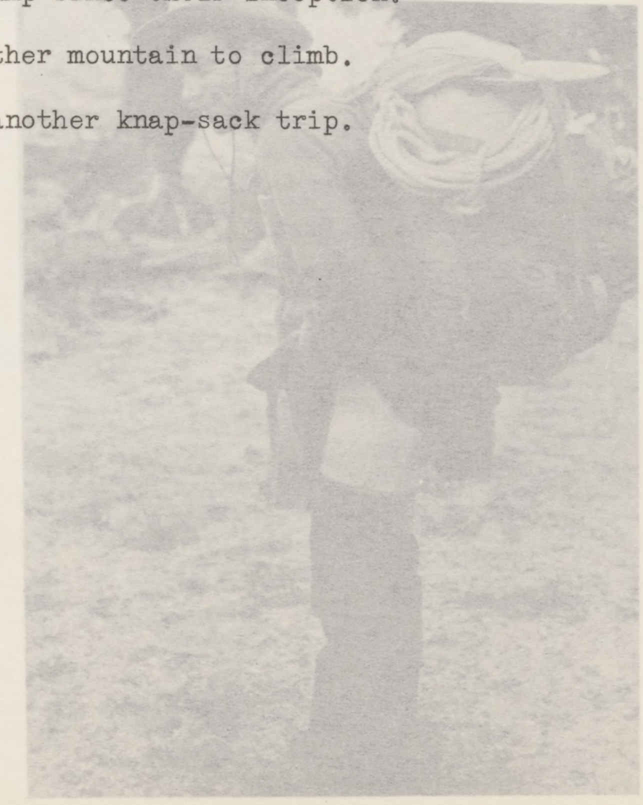
Upper-left: Dean and Marcella (Curtis) startled the members with an imported West Indian dance---and the costumes weren't all there was to the dance.

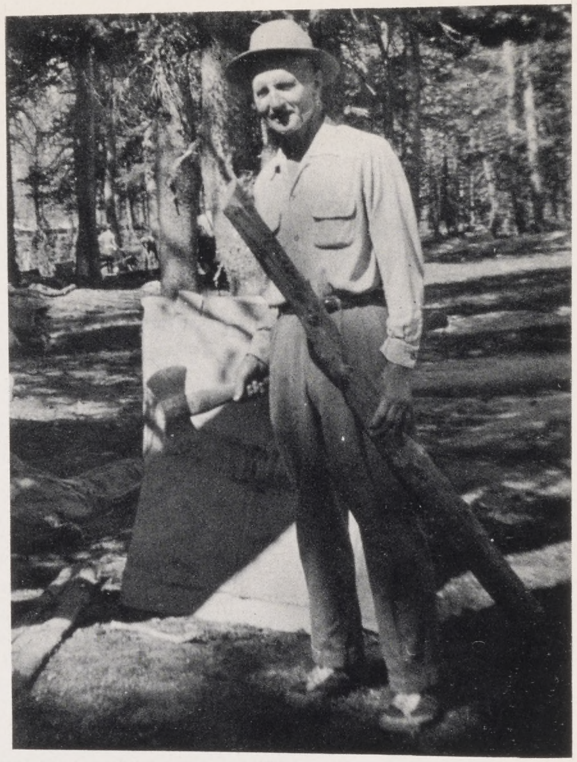
Upper-right: Peter Friedrichsen, our beloved Camp Master---who hasn't missed a single Base Camp since their inception.

Lower-left: Oliver looking for another mountain to climb.

Lower-right: Jim Koontz loaded for another knap-sack trip.







destroying or disturbing nature. As a result we did not diminish anyone else's pleasure, but shared with them the wholesome, good life.

All felt close to God, and because of that closeness were enabled to return to their accustomed places with the assurance that the Deity is not limited to mountain trails.

We came physically worn and mentally fatigued - we left, re-created in mind and body.

Throughout the entire period a fine spirit of fellowship and cooperation prevailed. Our camp was well chosen. The fishermen were in their element. The weather was ideal. The leadership was provided for the climbs. Most of us look forward to 1955 for another chance to visit the High Sierra.

"OFT, IN THE STILLY NIGHT-"
SOME DOT
HA HA

EXTRA!

DISCOVERY MADE IN BCBC 1954! A BIRD, RARE INDEED BUT, BE ALLAH PRAISED, UBIQITOUS IN BASE CAMP WAS IDENTIFIED THIS YEAR BY ONE OF THE SAN DIEGO FOSTERS (GUESS WHICH ONE!). LONG RECOGNIZED AS OF THE PRICELESS GENUS THOMPSONIANA, POSITIVE RECOGNITION WAS MADE OFFICIAL AT CAMP FIRE BY LILLY (DON'T THOSE STANLEYS GET AROUND THO!) WITH HER RARE INSIGHT. (SHE IS A GOONY BIRD HERSELF.) LOOKING INSIDE HER INSIGHT, WITH NO CIDER INSIDE HER (SO FAR AS WE KNOW) LILLY, I PRESUME, STANLEY HEARD ECHOES FROM THE DINNER'S DIN AND PROMPTLY REPORTED HER FINDINGS. "ONLY ONE", SAID LILLY, "ONE" I REPEAT, "ONE TYPE OF BIRD COULD BE THAT GOOD A COOK; THAT GENIAL A LADLER; THAT FLIP A FLAPJACK FLOPPER; THAT SLURPY A SOUP SIPPER; THAT BIRTHDAY A CAKE BAKER;" (IN HER EXCITEMENT LILLY'S SIMILES SLIPPED, BUT GRABBING THEM WITH BOTH HANDS TO HOLD THEM UP SHE WENT BRAVELY ON) "ONLY ONE - THE - ONE - THE ONLY -

THOMPSONIAN NEDHATCH!"

(RIVALED ONLY, WE HEAR, BY THE CARDINALIANENSIS DEAN CURTIS)

THAR'S FISH IN THEM RILLS

AWL ABOUT PETE the FRIEDRICHSEN

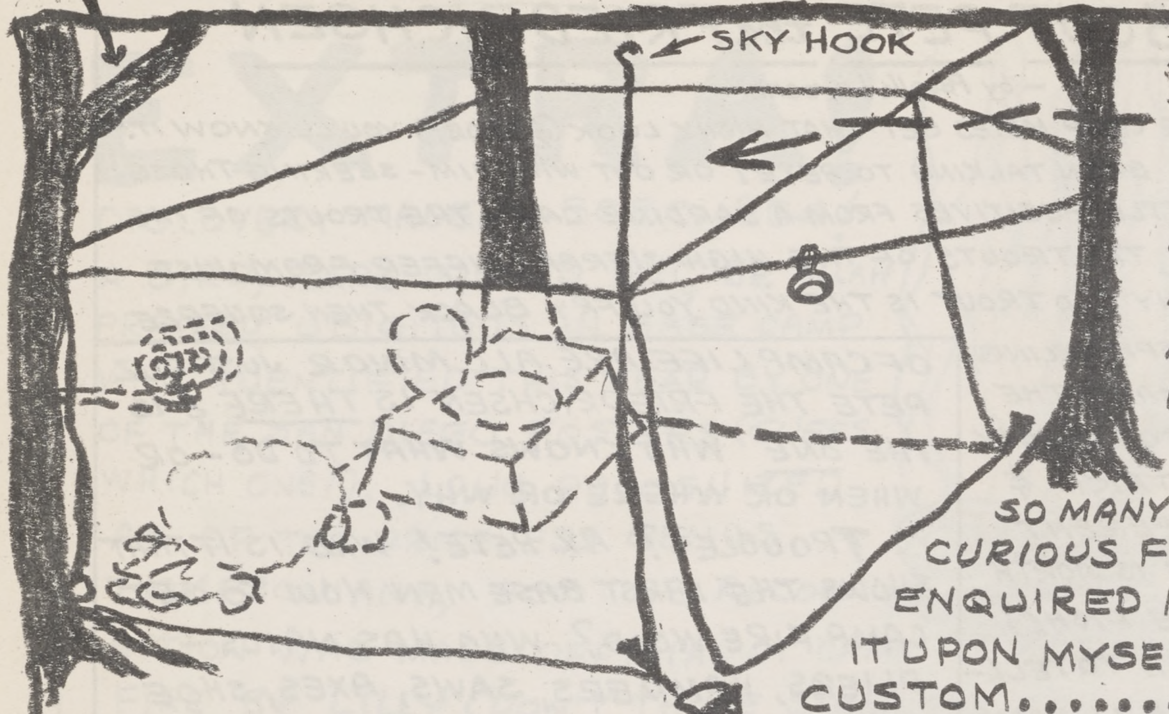
– by Povella Larsons –

WHEN YOUR CAMP MATES GET THAT FISHY LOOK (& ODOR?) YOU'LL KNOW IT! THEY'VE BEEN TALKING TO PETE! OR OUT WITH HIM – SEEKING THOSE TASTY LITTLE FUGITIVES FROM A SARDINE CAN – THE TROUTS OF THE HIGH SIERRA. THEY, THE TROUTS OF THE HIGH SIERRA, DIFFER FROM JUST ANY OLD TROUT. ANY OLD TROUT IS THE KIND YOU FRY BLACK THEN SQUEEZE OUT THEIR EYES FOR CAVIAR. BY SPRINKLING SALT FROM THE BLACK SEA YOU MAKE THE BENT-FROM-SQUEEZING-EYES INTO ANCHOVY PASTE. BUT THAT IS A RUSSIAN TRICK & THIS IS ABOUT A FISH OF A DIFFERENT COLOR. PETE THE FRIEDRICHSEN IS WORTH HIS WEIGHT IN GOLD (IF YOU LIKE FISH!) AROUND THE CAMP. IN ADDITION TO TELLING YOU WHERE TROUTS ARE, HE'LL SOON TELL YOU WHERE TROUTS AIN'T! ALAS, DICK LEONARD CAN'T EAT THEM JUST NOW (BECAUSE PRESUMABLY HE ISN'T IN THE HIGH SIERRA!).

BUT IS THIS AWL THERE IS ABOUT OUR PETE THE FRIEDRICHSEN? HE IS SO SHY HE TURNED HIS BACK TO OUR CAMERA. HE IS THE ONE PROBLEM SOLVER WHO, WHEN YOUR TENT IS LEAKING, ROPES ALL BROKEN, YOUR RUCK SACK SPLIT, YOUR UPPERS FLAPPING, YOUR HEELS FALLING OFF, YOUR OWN FIRE A SOGGY SMOULDERING MESS, YOUR SOLES WORN THRU – IN SHORT, THE JILLION DISASTERS OF CAMP LIFE ARE ALL MINOR JUST CUZ PETE THE FRIEDRICHSEN IS THERE & IS THE ONE WHO KNOWS WHAT TO DO – OR WHEN OR WHERE OR WHY.

TROUBLES? AX PETE! WHO IS IT THAT SHOWS THE FIRST BASE MEN HOW TO GET CAMP FIRE WOOD? WHO HAS NAILS – PLIERS, HAMMERS, SAWS, AXES, SHOE PATCHES, PALS AMONG THE PACKERS, (O CONTACT WITHOUT PRICE) WHO KNOWS WHERE THE LEMONS ARE WHEN SOMEONE GETS HIVES LATE AT NIGHT, WHO NOT ONLY KNOWS HOW TO DO IT BUT HAS THE TOOLS & HELPS YOU LEARN SELF SUFFICIENCY IN THE MOUNTAINS? PETE – ONLY PETE THE FRIEDRICHSEN HAS AWL THESE ATTRIBUTES.

STARTING WITH TROUTS, WE'LL END ON THAT FISHY NOTE. PETE, & MARK THIS, YOU PISCATORIAL PALPITATORS, PETE EVEN KNOWS THE GIRLS WHO WILL COOK THOSE TROUTS FOR YOU!



ADDENDUM TO BCBC '54

THIS IS A BURLAP!

IT IS NOT A COMFORTABLE LOUNGE IN THE RAIN OR HAIL OR SNOW; IN THE MIDDLE OF THE FROSTY NIGHT; NOR IS IT SHELTER IN THE TIME OF STORM.

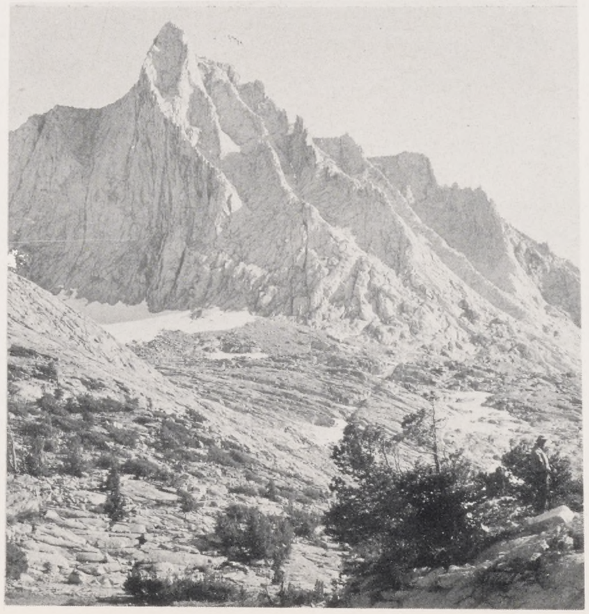
SO MANY OF MY QUITE NATURALLY CURIOUS FRIENDS HAVE TIMIDLY ENQUIRED INTO THIS MATTER I TAKE IT UPON MYSELF TO EXPLAIN QUAINT CUSTOM.......

BURLAPS GOT THEIR NAME FROM THE CLOTH FIRST USED AS A WALL. THERE ARE USUALLY 8 OR SO OF THESE EDIFICIA IN LOCO BASE CAMP & AS IT IS LAST BASE CAMPERS' DUTY TO REMOVE ALL TRACES OF CAMP ITSELF, SO IS IT THE INDIVIDUAL CAMPER'S DUTY TO REMOVE OR RATHER COVER UP HIS TRACKS. THE INDIAN WORDED IT BEST - "WHERE I GO, I LEAVE NO SIGN."

IT IS MANNERS ALSO TO HANG YOUR CUP OUTSIDE WHEN OCCUPIED WITHIN - IT IS NOT MANNERS TO FORGET YOUR CUP & LEAVE IT HANGING THERE ALL DAY THUS CAUSING PROCRASTINATORS TO RUN ABOUT FRANTICALLY IN ALL DIRECTIONS LOOKING FOR A BURLAP WITHOUT A CUP HANGING OUTSIDE!

THUS DOES OUR CLUB WITH TRADITIONAL INGENUITY MEET ONE OF LIFE'S LITTLE PROBLEMS.

GM54



REPORT OF SECOND BASE CAMP

MIRIAM FIELD REPORTER

ILLUSTRATIONS- CARRYE OPTON

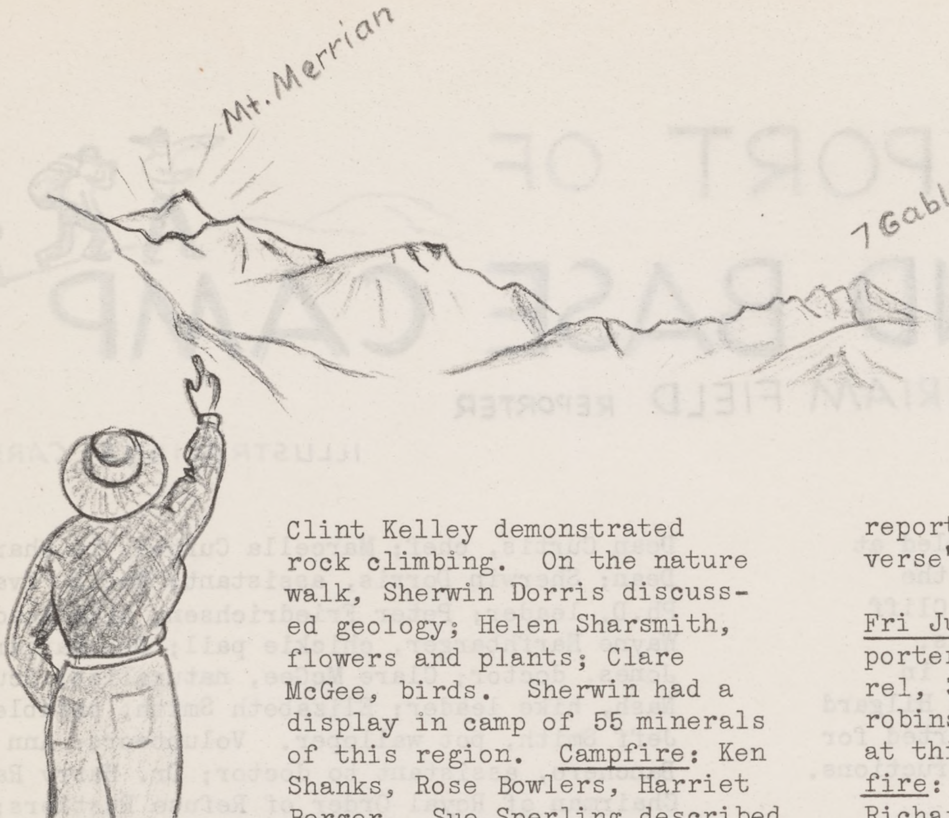
On July 17. 171 Sierra Club members assembled at Mono Hot Springs for the first Campfire of the 2nd Base Camp. Oliver Kehrlein introduced Cliff Youngquist, leader for the ensuing two weeks. Oliver promised there wouldn't be a grandma in the crowd after the 17-mile hike to camp on Hilgard Branch above Bear Creek. After Oliver departed for the Mt. Whitney Camp, Cliff gave final instructions.

Sun July 18. At 4:00 A.M. we weighed in. Hikers drove to Vermillion Valley, and started the hike, much of it along Bear Creek, sparkling and singing over granite rocks. From early afternoon till dinner, each arrival at Base Camp received a welcoming smile from Murphy Evans, a cup of delicious hot soup, and a place to lay his head. Steaks for dinner and Campfire.

Mon July 19. Camp organizational meetings called by Cliff: First Baseman's indoctrinational meeting, with Julius Young chairman of the First Baseman's Show; a meeting on scheduled hikes; and a family meeting. Clare McGee, in charge of the children's program, outlined plans for crafts, painting and collecting specimens for a museum, with Helen Johnson and Peggy Long co-chairmen. At Campfire, Cliff introduced the commissary staff: Dean Curtis, chef; Marcella Curtis, in charge of Dean; Sherwin Dorris, assistant; Wm. B. Evans, Ph.D. leader; Peter Friedrichsen, hike leader; Wayne Harfhbarger, chickie pail; Dr. Margaret Jones, doctor; Clare McGee, naturalist; Scudder Nash, hike leader; Elizabeth Smith, potables; Jeff Smith, pot walloper. Volunteers: Ann Banchero, assistant to doctor; Dr. Harry Rabb, Chairman of Royal Order of Refuse Rustlers; Fred Smith, Chairman, Snow Detail; Steve Wyckoff, Campfire M.C.; Bud Wyckoff, song leader.

Tues July 20. Campfire: Ph.D. leader Bill, reporter Jeanne Golding: The group climbed Flat Top overlooking camp, continued to Hilgard Amphitheatre and Mono Divide. M.A.'s and Grandmas climbed Flat Top in two groups, led by Peter, Cliff and Scudder. It was a hot climb, fragrant with sage crushed against talus. Sherbet at the top. Zenaida Talbot saw for the first time Mt. Merriam named for her father, C. Hart Merriam, noted naturalist. Program: Johnny Berger, Hilgard Hillbillies, and talk on first aid by Dr. Henry Mayer.

Wed July 21. George Loosley gave lessons in fly fishing, Ted Abeel talked on photography, and



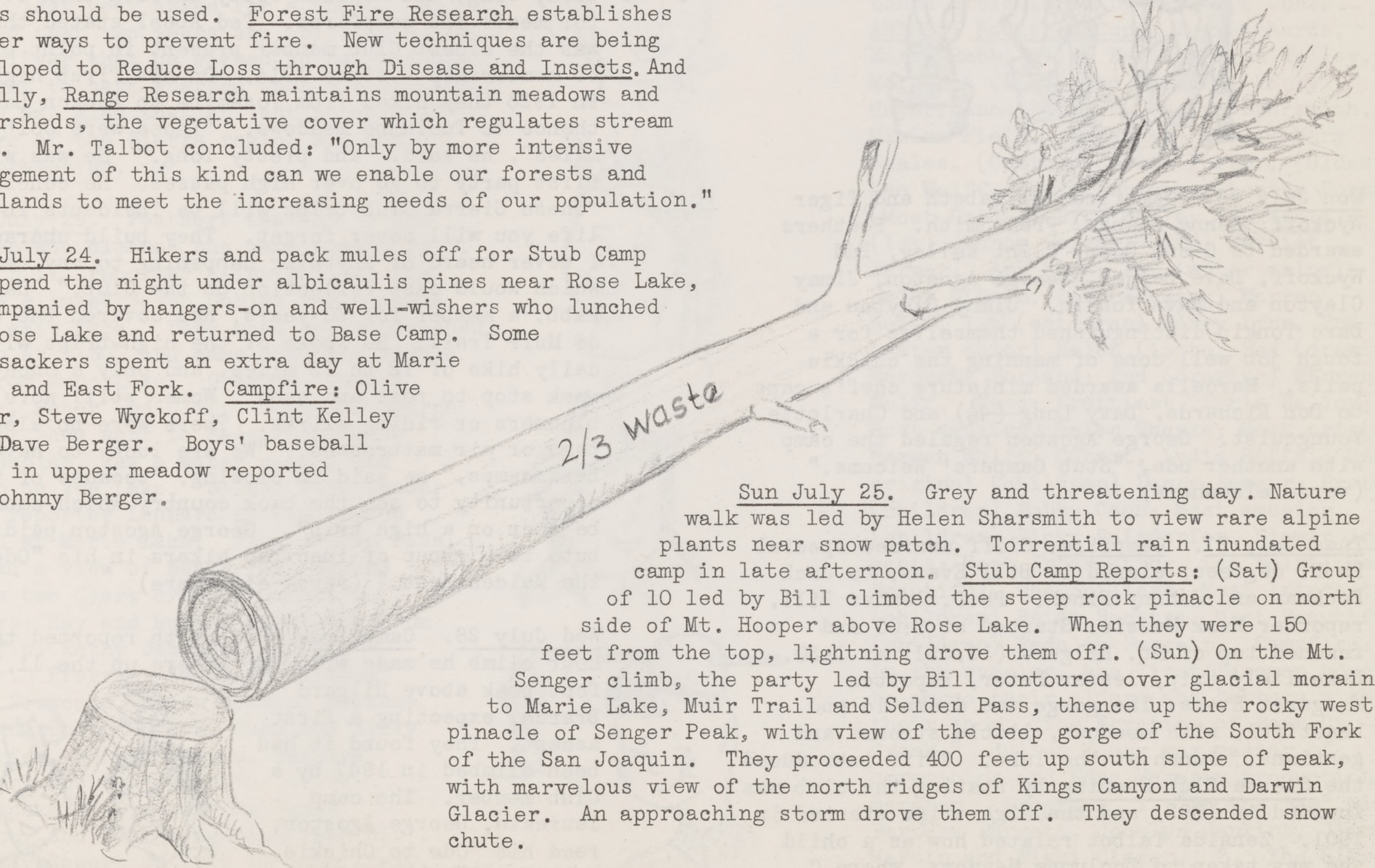
Clint Kelley demonstrated rock climbing. On the nature walk, Sherwin Dorris discussed geology; Helen Sharsmith, flowers and plants; Clare McGee, birds. Sherwin had a display in camp of 55 minerals of this region. Campfire: Ken Shanks, Rose Bowlers, Harriet Berger. Sue Sperling described river trip on the Yampa. Her mother, Bonnie Sperling reported two-thirds of local people were against Echo Park Dam project. Star Gazing was conducted by Clare McGee.

Thurs July 22. Campfire: Grandma leader Peter, reporter Maybelle De May: Lunched at Cub Lake, where children swam, had snow fight. M.A. leader Scudder, reporter Mary Sacles: Climbed to first lake, then up to Lake Orchid with distant view of Red and White Mountain. Ph.D. leader Bill, reporter Clint Kelley: Climbed to 12,130 peak, and made a complete circuit of lakes in this region. Program: Hilgard Choir, German songs by quartet, and minority report by George Agoston ("my first try at verse"), "Ode to the PH.D." (verse elsewhere)

Fri July 23. Nature walk, leader Clare, reporter Charles Tonkin: Saw a Belding squirrel, 3-toed woodpecker, a next of small robins; studied small animals and conifers at this altitude - about 9,500 feet. Campfire: Commissary feathers awarded to Don Richards, Harry Rabb, Fred Smith, Rita Walley, George and Maybelle De May, Charles and Grace Tonkin. Program: Helen Gibson, Anne Banchero, Maybelle De May and Clint Kelley; impromptu jungle dance by Dean and Marcella Curtis, wearing leopard skins, ear and nose rings.

M. W. Talbot, Associate Director, California Forest Range and Experiment Station, Forestry, spoke on his agency's work, confining his talk to Sierra National Forest, one of 18 of our national forests. The No. 1 crop of our mountains is water, most vital to the State and key to its development. Next in importance: recreation, timber and grazing. He outlined the scope of the work: Forest Survey inventories our forest reserve every 10 years. Wood Utilization studies means of getting most from each tree. At present 2/3 of tree is wasted. Forest Management is making a study of a balanced harvest of fir and ponderosa pine. Breeding, Selection, and Hybridization: Trees should plant naturally, but when the Service has to plant (due to forest fires), only superior seeds should be used. Forest Fire Research establishes better ways to prevent fire. New techniques are being developed to Reduce Loss through Disease and Insects. And finally, Range Research maintains mountain meadows and watersheds, the vegetative cover which regulates stream flow. Mr. Talbot concluded: "Only by more intensive management of this kind can we enable our forests and woodlands to meet the increasing needs of our population."

Sat July 24. Hikers and pack mules off for Stub Camp to spend the night under albicaulis pines near Rose Lake, accompanied by hangers-on and well-wishers who lunched at Rose Lake and returned to Base Camp. Some knapsackers spent an extra day at Marie Lake and East Fork. Campfire: Olive Mayer, Steve Wyckoff, Clint Kelley and Dave Berger. Boys' baseball game in upper meadow reported by Johnny Berger.



Sun July 25. Grey and threatening day. Nature walk was led by Helen Sharsmith to view rare alpine plants near snow patch. Torrential rain inundated camp in late afternoon. Stub Camp Reports: (Sat) Group of 10 led by Bill climbed the steep rock pinacle on north side of Mt. Hooper above Rose Lake. When they were 150 feet from the top, lightning drove them off. (Sun) On the Mt. Senger climb, the party led by Bill contoured over glacial moraine to Marie Lake, Muir Trail and Selden Pass, thence up the rocky west pinacle of Senger Peak, with view of the deep gorge of the South Fork of the San Joaquin. They proceeded 400 feet up south slope of peak, with marvelous view of the north ridges of Kings Canyon and Darwin Glacier. An approaching storm drove them off. They descended snow chute.

Mon July 26. Campfire: Elizabeth and Tiger Wyckoff, Kenny Shanks, Fred Smith. Feathers awarded to Glenn Conn, Clint Kelley, Bud Wyckoff, Dave Berger, George Agoston, Jimmy Clayton and Dave Tonkin. Jimmy Clayton and Dave Tonkin distinguished themselves for a tough job well done of manning the chickie pails. Marcella awarded miniature chef's caps to Don Richards, Davy Long ($4\frac{1}{2}$) and Charlotte Youngquist. George Agoston regaled the camp with another ode, "Stub Campers' Welcome." (verse elsewhere)

Tues July 27. Campfire: Cliff awarded special Ph.D. degrees, signed by Bill Evans, to Jack Pockman and Johnny Finch. Ph.D. leader Bill, reporter Mark Massie: Started at 8:00 and reached top of Mt. Hilgard (13,351) at 1:30. Lake Italy trip, leader Peter, reporter Margaret Evans: The gorge was dramatic and beautiful, with meadows, little streams and gentians. Lunch at the lake. Cliff introduced the Sierra Club Evening by stating the club was founded in 1892, and the high trips started in 1901. Zenaida Talbot related how as a child she was taken to Tuolumne Meadows, where C. Hart Merriam, her father, was making a survey. In their party were John Muir and his daughters, Helen and Wanda. Her first sight of Sierra Club members was when 40 of them - all adults - camped on the river above them. The Club had a Chinese cook, Sing, and William Colby invited them over for meals and campfires. Ted Abeel stated that he was the oldest Club member present in point of time of membership - since 1914. On his first high trip in 1923 they hiked from Yosemite to Benson Lake, thence to Tuolumne Meadows. "Those were Colby miles", he said, "and pretty long." He was with first party to go over high passes. He concluded: "These Sierra Club trips will be incidents in your life you will never forget. They build character. I never heard of anything happening to any member which would cast reflection on the Club." Harry Rabb, a member for 30 years, has covered the whole of Muir Trail. He spoke of the high trips with a daily hike of 12 to 15 miles, and only a once-a-week stop to rest and wash. Women still wore bloomers or riding skirts. There were no sleeping bags or air mattresses. "We are lucky to have these base camps," he said in closing, "because of the opportunity to see the back country which cannot be seen on a high trip". George Agoston paid tribute to a group of inspired hikers in his "Ode to the Maiden Aunt." (verse elsewhere)

Wed July 28. Campfire: Fred Smith reported the $3\frac{1}{2}$ hour climb he made with two others up the 11,700 foot peak above Hilgard Branch, expecting a first ascent. They found it had been climbed in 1947 by a Club member. The camp laureate, George Agoston, read his "Ode to Chickie Pail No. 2". Fred Smith voiced his concern over

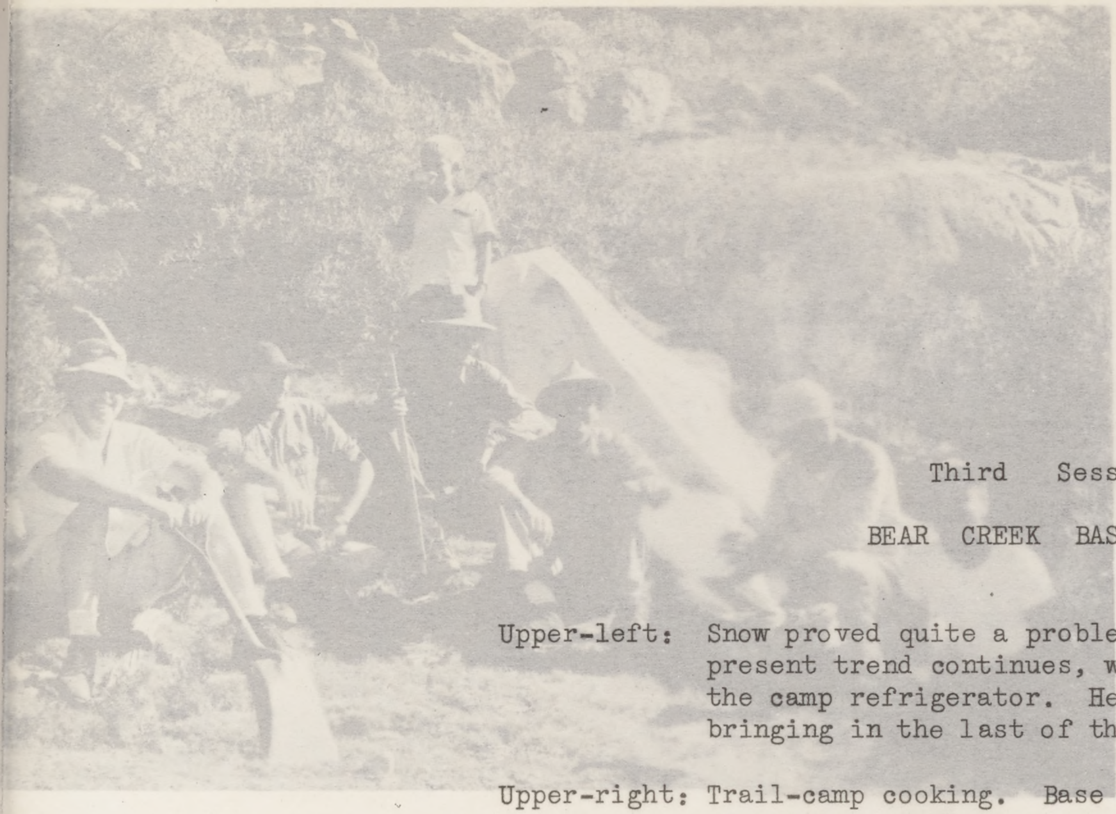
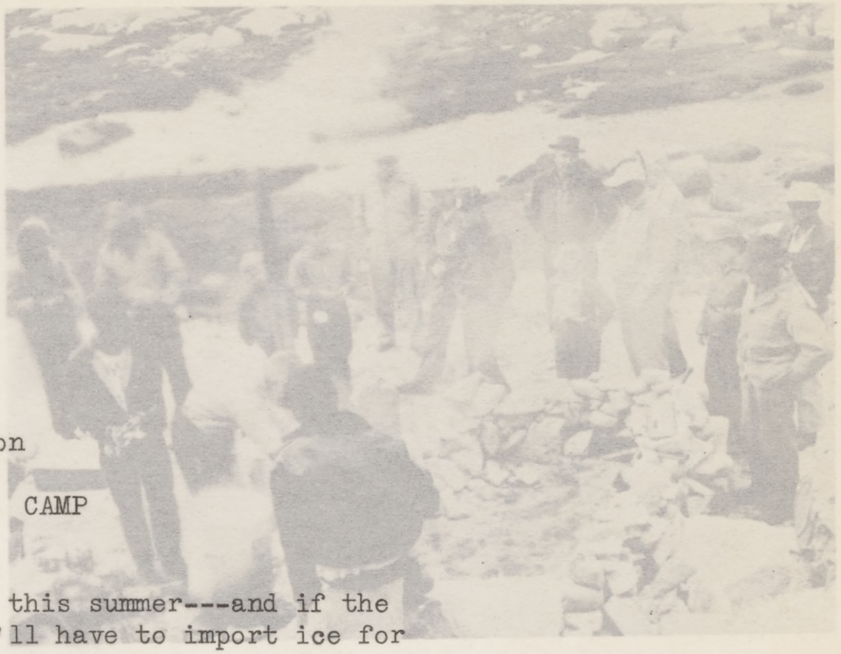
the discontinuance of the annual Base Camp Book. He pointed out that it was not only an asset to the Club, but the 1953 edition now had a value of $5.00 on the open market. Dave Berger supported a resolution that the book be continued. Cliff stated that the Library of Congress, which receives two copies, last year asked for a third. He recalled that two years ago, William Colby wrote Oliver that he wished he had had the foresight to have started such a book, and that he was glad that at last so much of the lore of the Sierra region was now being preserved.

Thurs July 29. Feathers awarded to the children who cleaned the camp area. Ph.D. leader Bill, reporter Clint Kelley: Six of them climbed Seven Gables via a chute on the east face. They used ropes, reached the top at 1:30, and came down the saddle seen from June Lake. Grandma leaders Scudder, Peter and Cliff, reporter George Agoston: They went to East Fork below Seven Gables, saw a water ouzel, and went on to Vee Lake. Selden Pass leader Clare, reporter Leonard Liotta: Group lunched at Marie Lake. From Selden Pass, they had a view of Heart Lake beyond and saw two Clark crows. Campfire visitors: Ray and Ruth L'Esperance from high trip, Kathy Jackson and Jack Wheeler. Program: "Wanderer's Song" led by Norwoods, Helen Gibson, Suzanne Petti and Bobby Soxers, Joan and Ricky Polsdorfer, Norman Franke, Barbara Schuyler, and Bud Wyckoff. Olive Mayer spoke on Dinosaur National Monument, and George Agoston read his "Minority Report on Trip to Lake Italy."

Fri July 30. Everyone wore fancy handsome hats to Murphy and Bill Evan's garden party in the upper meadow. On display were more than 50 bandanas; paintings, sketches, blue print painting by the children; gadgets; flower and plant arrangements; and the Monosaur bones articulated by Margaret Jones. AWARDS: Polished Cups: Don Richards, Harry Rabb, Clint Kelley, Rita Walley, Margaret Jones, Bud Wyckoff, Henry Mayer, Anne Banchero, Helen Sharsmith, Miriam Field. Bandanas: (Silk) Mary Scales, (Cotton) Carlos Porter, (Oldest) Lee Wolff, (Most Artistic) Louise Porter, (Most Unique) Rita Walley. Gadgets: (1st) Johnny Berger, (2nd) Harriet Berger. Art Show: 1st (water color) Helen Gibson, 1st (drawing) Warren Wolff, 1st (children) Nancy Lynn, 2nd (water color) Helen Liotta, 2nd (drawing) Marjorie Borland, 2nd (drawing) Warren Wolff. Hats: Prettiest, Doris Walley; Most amusing, Helen Shanks; Most original, Warren Wolff; Cutest, Lydia Riffel; Most original (children) Danny Berger; Prettiest (children) Bobby Conn; Most amusing (children) Ricky Polsdorfer. Flower Arrangements: Most Interesting, Lee Wolff; Most Beautiful, the Spillers; Most Interesting (children) Heidi Henstra; Most Beautiful (children) Fadeley Barrett. Campfire: In the evening, the First Basemen sought to amuse their elders and betters with their show, "The Erratics of Bear-Up Creek." Julius Young was master of ceremonies and Edna Hagerty production manager. Program: 1. "In the Bag" with Barbara Barrett, Jocelyn Jenkins, Jimmie Martin and Nikki Clever. 2. The Sierra

Songsters. 3. "Bribery on the Trail" with Susan Clayton, Clint Kelley and Warren Wolff. 4. "Lost and Found" with Don Borthwick and company. 5. Square Dancers. 6. "I'm the Very Model of a Modern First Base Camper", written and sung by Clint Kelley. 7. "Lines and Signs" with Olive Mayer and company. 8. "Battle of the Sleeping Bag" with Julius Young. 9. "Ten Day Trip to Mt. Whitney" (returning the same day), with Ph.D.'s, M.A.'s and Grandmas singing the finale, "The Erratics of Bear-Up Creek."

Sat July 31. As we set out early for the homeward hike to Mono Hot Springs, it was with admiration and affection that we thanked our hike leaders, Bill and Peter and Scudder; all the members of the commissary staff; those two ex officio members, Charlotte Youngquist and Murphy Evans; and our able and beloved leader, Cliff Youngquist.

Third Session

BEAR CREEK BASE CAMP

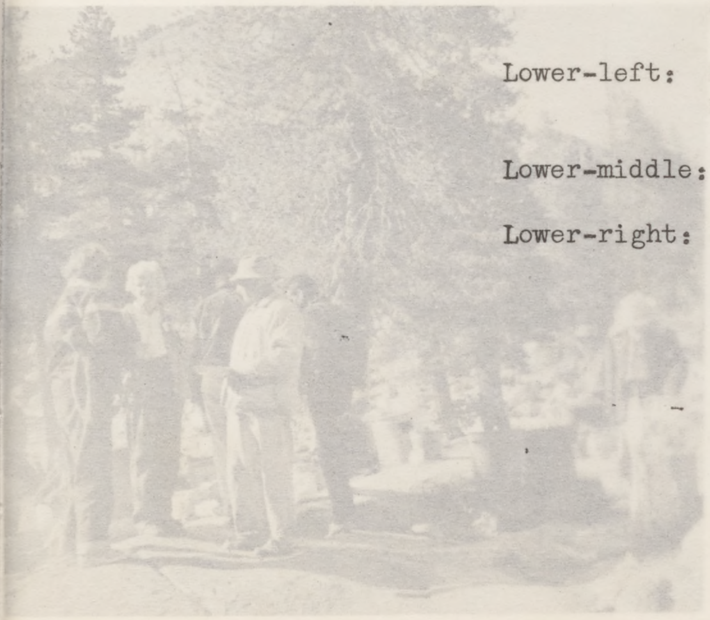
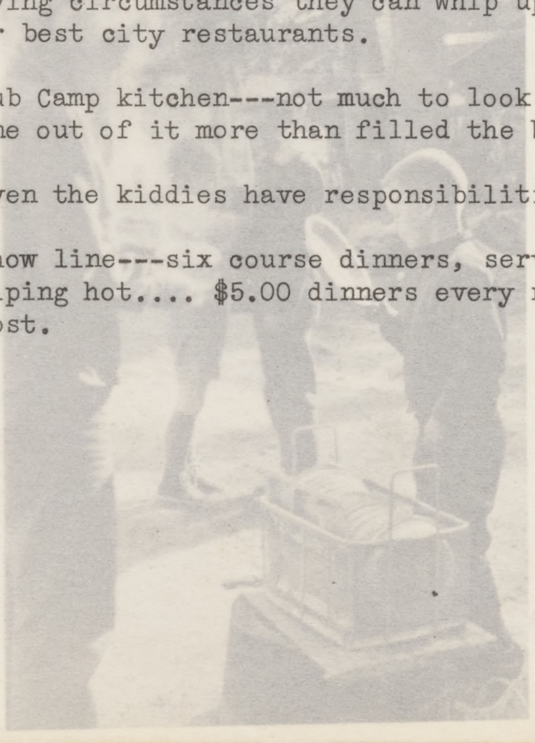
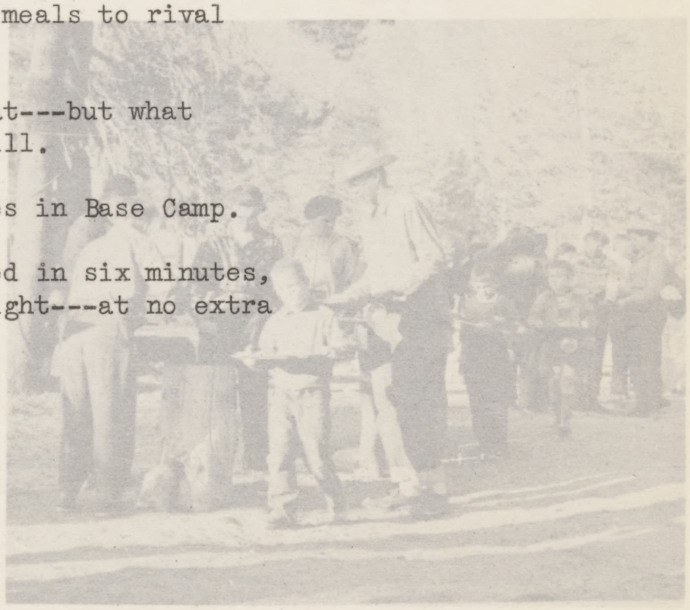
Upper-left: Snow proved quite a problem this summer---and if the present trend continues, we'll have to import ice for the camp refrigerator. Here we have the snow-detail bringing in the last of the hoarded supply.

Upper-right: Trail-camp cooking. Base Campers are adaptable and versatile. Nothing stumps them---even under the most trying circumstances they can whip up meals to rival our best city restaurants.

Lower-left: Stub Camp kitchen---not much to look at---but what came out of it more than filled the bill.

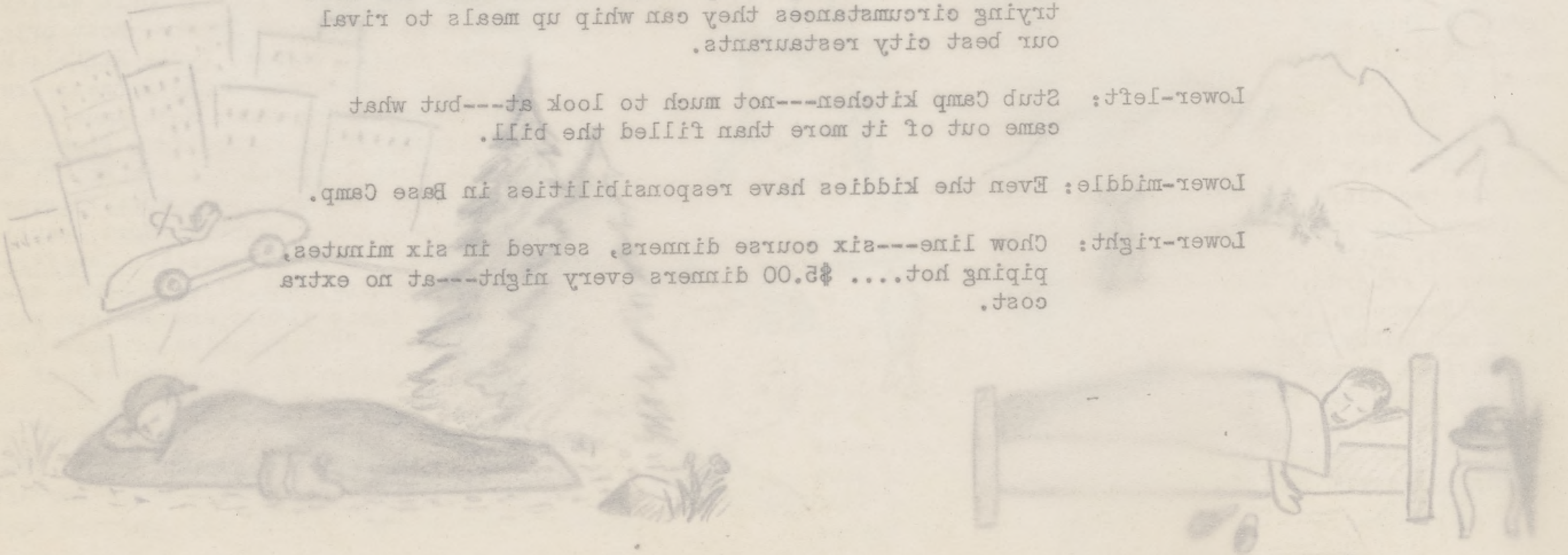
Lower-middle: Even the kiddies have responsibilities in Base Camp.

Lower-right: Chow line---six course dinners, served in six minutes, piping hot.... $5.00 dinners every night---at no extra cost.

Songsters. 3. "Bribery on the Trail" with Susan Clayton, Clint Kelley and Warren Wolff. 4. "Lost and Found" with Don Borthwick and company. 5. Square Dancers. 6. "I'm the Very Model of a Modern First Base Camper", written and sung by Clint Kelley. 7. "Lines and Signs" with Olive Mayer and company. 8. "Battle of the Sleeping Bag" with Julius Young. 9. "Ten Day Trip to Mt. Whitney" (returning the same day), with Ph.D.'s, M.A.'s and Grandmas singing the finale, "The Erratics of Bear-Up Creek."

Sat July 31. As we set out early for the homeward hike to Mono Hot Springs, it was with admiration and affe[illegible] thanked our hike [illegible] and Scudder; all the [illegible] commissary staff; those two [illegible] members, Charl[illegible] and Murphy Evans; and our [illegible] leader, Cliff Youngquist.



A MOUNTAINEER'S DOZEN

BY HELEN K. SHARSMITH

Far up the valley leading toward Mono Divide, with Hilgard Creek and the familiar vegetation of base camp left behind, my companions and I were acquainting ourselves with the very different plant life of the higher altitudes. Questions popped right and left--what was this plant? and that one? how could one ever learn even a few outstanding plants among this abundance? where was the territory of the famous Polemonium? what other famous plants were there to find?--so I promised to list a mountaineer's dozen of specially-to-be-sought-for, specially-worth-the-effort-to-know, high-montane flowering plants of the Sierra. It seemed very simple at the time; just choose a dozen outstanding species everyone should know. The proverbial baker (no modern one to be sure) just added a thirteenth to make his dozen, but the Sierran mountaineer's botanical dozen proved elusive. Every attempt brought forth a different dozen. Here is my last, but still tentative list. I am sure to change it by next summer, for I have learned that to make a satisfying mountaineer's dozen in plants, thirteenths must be added continually. They are all worth including.

1. Polemonium eximium--Skypilot.

Skypilot is deservedly highest on my list, for one has to climb so high to reach it. Skypilot is exclusively an alpine plant of the Sierra, always well above timberline and seldom below 11,500 feet, limited entirely to the high peaks of the Sierra Nevada crest. Intoxicating perfume permeates the thin air where Polemonium grows--upright and tall in seeming defiance of the rigorous alpine environment. The luminous blue of its clustered flowers eludes the color photographer no less than the writer. Justly famous among Sierra Club members as a symbol of mountaineering achievement, tradition decrees that one tiny sprig of this lovely plant may be picked and worn in the hatband of the climber who has reached the summit of a peak 13,000 feet or higher.

2. Hulsea algida--Alpine Sunflower.

In deference to its close association with Skypilot, Hulsea algida, the Alpine Sunflower, comes next in my list. Along with Skypilot, it grows tall and straight on the summits of our highest peaks, where other plants lie prostrate and clinging to the scant shelter of their rocky substratum. What a pair! The gloriously golden color of Hulsea's huge flower-heads contrasts vividly with the intense blue of Polemonium's loose flower clusters. Nature, however, has distributed both these magnificent plants sparingly, as if wary of her ability to defend their stature against the ever-recurrent buffetings of wind and storm. Almost every high peak boasts their presence, yet the individual plants are scattered and often quite distant from one another.

Our Hulsea, although not exclusively a Sierran Plant, charms the Sierran mountaineer almost as strongly as the more famous Polemonium. Whereas Polemonium becomes the searched-for trophy of successful mountain climbers, Hulsea may play a role romantic in a very different sense. Being a sun-flower, its many golden rays lend themselves admirably and enticingly to the age-old plucking game of "she loves me, she loves me not." Has anyone evidence to lend weight to my fancy?

3. Phlox caespitosa--Alpine Phlox.

Alpine Phlox is usually found above timberline not only in our Sierra, but throughout the west. This small and moss-like Phlox forms extremely condensed and compacted plants, which are good examples of what German botanists call "polster plants." Literally translated this means "cushion plants." Quite unrelated kinds of arctic or alpine plants living under the severe conditions of high latitude or high altitude frequently have this same type of growth.

The heavy, woody roots of polster plants, including those of our Alpine Phlox, may grow to an amazing length and size, anchoring the plant against the violent winds, and searching deep and wide for the scant moisture so vital to combat the dessicating influences of the dry air and low temperatures. These roots also furnish a storage space for reserve food to tide the plant over the long winter dormant season. Yet all that appears above ground may be a small, dense mat of leaves and stems pressed together very tightly into a ball or cushion perhaps only one or two inches high.

No icy gale can tear so much as a leaf from a well-armored polster plant, nor penetrate that armor with more than feeble strength. In relenting mood, however, nature frequently supplies such a sternly frocked polster plant with a myriad of beautiful blossoms during its brief flowering season. Such is the case with our Alpine Phlox; the entire plant may be quite literally covered solid with small, exquisite, white or pale lavender flowers, while not a harsh leaf or stem can be seen beneath the delicacy of this wonderfully fragrent mound.

4. Cassiope Mertensiana--White Heather.

The plant which bears so proudly a name overladen with connotations both celestial and mythological must have much to commend it. Truly Cassiope does. And to many mountaineers it represents the rarest delight of all. What mental pictures the mere thought of Cassiope can invoke! And how anticlimactic for anyone to attempt to append further words to John Muir's portraits of Cassiope, for this was his favorite plant too. Yet Cassiope is not a rare plant or even one limited to the uppermost peaks; rather, it is one of the commoner subalpine species of the Sierra from about 9,000 to 12,000 feet altitude. It is far-flung in distribution, too, occurring north to the subarctic areas of Alaska.

Often found in massive colonies in the Sierra, it fringes granite rocks, spreads itself as a thin ground-cover on more open slopes, or forms dense, marginal banks along the edges of streamlets. The matted shrubs have low, heather-like stems which are clad tightly with deep-green, four-ranked, scale-like leaves and are crowned with myriads of drooping, crimson-stalked and crimson-based, alabaster-white bells which double for flowers. Wherever I find it, Cassiope always inspires me with something that is very close to a feeling of reverence.

5. Phyllodoce Breweri--Bryanthus, Red Heather.

Red Heather and White Heather--like Polemonium and Hulsea, a pair to intrigue the mountaineer. Whereas Polemonium and Hulsea make a complementing pair, Bryanthus and Cassiope make an interrelated pair, for they are both members of the Heath Family. Kinship is obvious in the grosser features of their heather-like, diminutively shrubby and matted stems. Their flowers also show close relationship. Peer into the depths of Cassiope's 5-lobed, white flower-bell, and deep within it you will see ten crimson stamens on short stalks (filaments) around a central pistil, each stamen bearing an anther (pollen sac) that is tipped with a pair of bizarre, recurved horns and has an end chink or hole through which pollen escapes. The whole gives a pattern of amazing symmetry and color contrast. Look into the more open, 5-lobed bowl of Bryanthus' rose-colored flower, and you will see ten stamens protruding on long filaments from around a central pistil, the anthers again shedding pollen through an end chink. Here the peculiar recurved horns are missing, but the basic similarity of the flower pattern to that of Cassiope is striking.

At its upper limits Bryanthus overlaps Cassiope's territory, and there the two heathers may be found in very similar habitats. Where Bryanthus is found at lower altitudes, however, it is often abundant as a low cover to the forest floor beneath Hemlocks and Lodgepole Pines.

6. Kalmia polifolia var. microphylla--Pale Laurel or Swamp Laurel.

Here is a third bonny member of the Heath Family, and if I were not attempting impartiality I could jam my list with Sierran heaths--Alpine Huckleberry, Labrador Tea, Sierra Laurel, Alpine Wintergreen, etc. If I included lower altitudes, I could justifiedly squeeze in Snowplant, Western Azalea, Madrono, and innumerable species of Manzanita. Thus with heaths alone I could have more than filled my list.

Our Kalmia is a bog or wet-meadow plant of Alpine and subalpine altitudes, extending north and west far beyond the Sierra. Against the greenness of their meadow background, its clusters of pale-pink, saucer-shaped flowers on dwarf, woody stems only an inch or two high make an always-pleasing sight. Seldom abundant in one spot, and never making a solid splash of color, its individuals are, nevertheless, widely spread and frequently encountered.

The flower shows the same basic pattern as in White and Red Heathers. It, too, has ten anthers opening by characteristic holes or chinks and symmetrically arranged on delicate filaments around a central pistil. Instead of a cylindric bell or half-open bowl, however, the flower is a widely-spreading saucer. This saucer-shaped, 5-lobed flower bears near its base and opposite each stamen, ten unique recesses or pouches. As the bud opens and the flower expands, each of the ten stamens is caught in its respective pouch, and each anther thus trapped, is forced outward and backward. When the flower is jostled by an insect, the stamens are freed suddenly and pollen is shaken over the insect from the end chinks in the anthers as salt from a salt shaker. Thus the insect unwittingly acts as a contact agent in cross-pollination. Other stimuli also free the stamens; try tapping an undisturbed Kalmia flower gently (if you can beat the insects to one you are lucky), and watch what happens.

Behind Kalmia's charm lies danger. Its foliage contains an alkaloid highly poisonous to animals, particularly to browsing sheep. Fortunately, as with a few other heaths which share this poisonous quality, Kalmia's leaves are leathery and unpalatable, and are usually eschewed instead of chewed by animals.

7. Oxyria digyna--Alpine Sorrel.

Oxyria digyna is the one plant in our list which is circumpolar in distribution. This same species ranges with inappreciable variation from the alpine heights of the Sierra Nevada to the arctic wastes of North America, Europe, and Asia.

As a close relative of common, weedy Dick in the Buckwheat Family, Oxyria's flowers are neither conspicuous nor attractive, and they can certainly lay no claim to fame. To me, it is two other characteristics that make Oxyria outstanding--its habitat and its edibility. At alpine altitudes throughout the Sierra, isolated plants of Oxyria may be encountered in moist grottos or sheltered niches among otherwise quite barren granite cliffs and detritus. In such seclusive spots, it grows in rounded clumps several inches to a foot tall, the thick, woody base heavily clothed with large, smooth, fleshy, kidney-shaped leaves on long stalks, the whole mass a deep green strongly suffused with red. From this rosette of leaves arise one to several flowering stalks with pendant, small, inconspicuous, reddish-green flowers. It is the leaves which are most attractive; they look good enough to eat--and are. Their smooth succulence yields a pleasantly acid, refreshing juice, no doubt full of unseen vitamins as well. To the climber they furnish a welcome mouthful at a point where fatigue and dehydration are spt to make them appreciated the more.

8. Epilobium obcordatum--Rock Fringe.

Rock Fringe belongs to the Evening Primrose Family. This little alpine plant well deserves its name; in the Sierra it is found here and there near timberline, fringing rocks and ledges. Its low, mat-like stems and small, pale green leaves are held firm to rock's edge by the tenacious roots which penetrate cracks deeply. The flowers are light rose-purple, often an inch across, each of the four petals widening above to a deeply lobed apex, thus shaped like an inverted heart (hence the species name, "obcordatum"). A four-lobed, rose-purple stigma (pollen-receiving surface) protruding from the pistil on a long style (stalk), and eight yellow anthers on alternately long and short, rose-purple filaments add greatly to the charm of each flower. When these colorful flowers make a continuous frame around a granite rock, the resulting picture is one in which the traditional balance of frame-to-central-subject is reversed.

9. Primula suffrutescens--Sierra Primrose.

Sierra Primrose is a subalpine plant of erratic distribution. Base campers of the last three summers may question its inclusion in this list, for I do not recall a single colony of Sierra Primrose between Evolution and Mono creeks. In the more southern Sierra, however, Sierra Primrose is frequently found along rocky ledges or on the open gravel of mountain slopes. Usually it occurs in isolated colonies, although a single colony may be extensive and contain many hundreds of individuals. As one goes north in the Sierra, the colonies become more and more infrequent, yet where they occur they may cover considerable area.

Anyone who knows garden primroses will

recognize Sierra Primrose when he sees it for the first time. He will understand, too, why Sierra Primrose is part of the mountaineer's dozen. In mass, the color effect is striking. Individually, it is a distinctive plant, with the wedge-shaped leaves crowded on low, creeping, woody stems. Leafless stalks two to four inches long arise from the woody stems, and bear at their tips loose clusters of reddish-purple flowers, the five, deeply-notched lobes of each flower spreading widely above a narrow tube.

10. Aquilegia pubescens--Sierra Alpine Columbine.

The Alpine Columbine is well known to base campers. Our Sierran species occurs exclusively in the Sierra Nevada, usually at or near timberline in coarse talus or among large avalanche boulders at the foot of cliffs. Few realize that the Columbine is a close relative of the Buttercup and belongs to the same family. Yet the basic family characteristics are actually present, underlying the unique features of the Columbine flower with its elongated, hollow, gracefully recurved, nectar spur.

In the lower forested area of the Sierra, there is another species of Columbine, Aquilegia truncata, with scarlet-red flowers tinged a bright yellow. Sometimes when this red-flowered Columbine grows near our Alpine Columbine, cross pollination may occur. Hybridization takes place freely, and the successive generations of inbreeding hybrids frequently form what botanists call a "hybrid swarm." The flowers of such a swarm may display amazing color variation--red, pink, purple, lavender, blue, yellow, and cream to white.

11. Penstemon Menziesii var. Davidsonii--Davidson's Penstemon.

The name Penstemon usually brings to mind a lowland or garden plant of tall, handsome stature with a profusion of large, blue flowers similar in shape to the well-known monkeyflower. Our alpine Penstemon excels most lowland species in its rich, blue-purple flowers of unusual size and profusion, but the lowly plant body which bears them is dwarfed to a point of harmony with its rocky anchorage and the severe, high-montane climate.

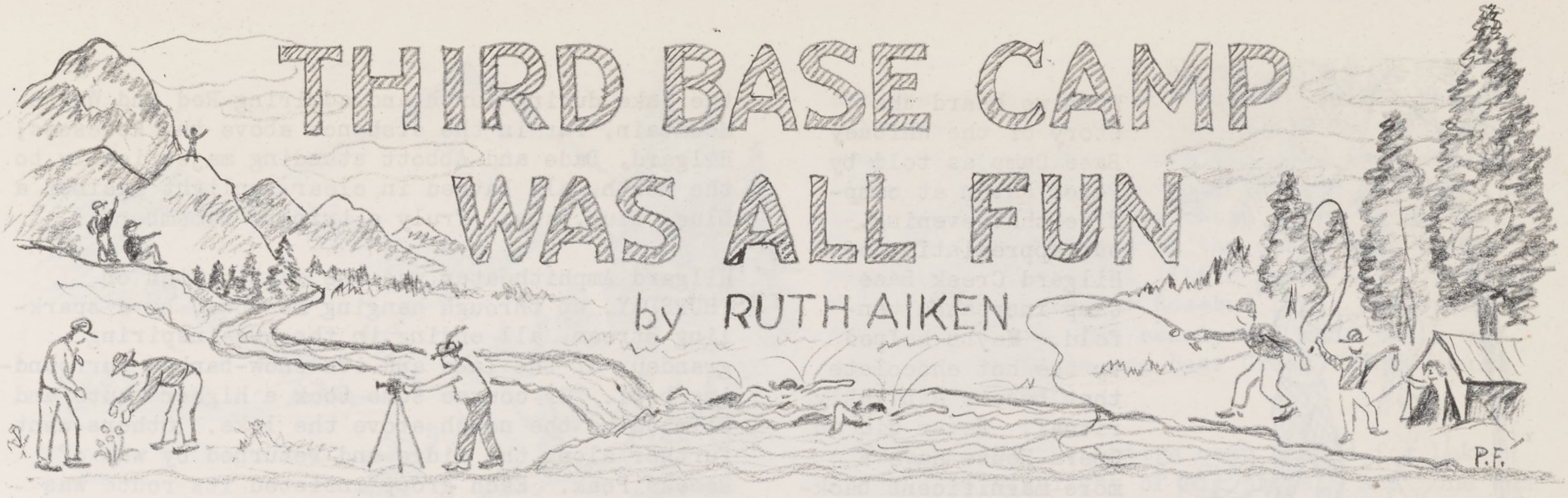
This lovely Penstemon grows sparingly on rocky ledges at the upper reaches of timberline throughout the west. Its much larger, bluish-purple flowers and lower stature easily distinguish it from its beautiful, red-flowered counterpart of slightly lower altitudes (Penstemon Newberryi; Pride of the Mountains.)

12. Salix petrophila var. caespitosa--Alpine Willow.

On moist gravelly benches or in the green sod of our highest meadows, is a Liliputian plant, the Alpine Willow, which in fancy I like to call our smallest Sierran tree. Its stubby, tortuous, woody stems may be only two to four inches high, yet a cross-section at the base of one may show 50 to 60 or even many more annual rings, indicating the approximate age of the plant. Each year's growth in diameter is so slight, and the rings lie so close to each other, that they are uncountable except by microscope.

Other high alpine perennials usually die back to ground level with the advent of each frigid dormant season, but our tiny willow merely drops its leaves and lies low beneath the snow through the long months of winter. During the short summer there is scant time for growing activities over and beyond the basic necessities of seasonal food production and reproduction. Green leaves clothe the stubby stems, and these soon become surmounted by huge flowering catkins (pussywillows). Simultaneously the stem's girth and length increase infinitesimally, the former as a circle of new wood (annual ring) a few cells wide laid down along the stem's length beneath the outer bark, the latter with the bursting of the end bud to produce a tiny addition to the total length of stem.

Probably all of us are familiar with this tiny Alpine Willow, so common in the high Sierra, and I do not wish to slight such a sturdy and successful dwarf. Nevertheless this "smallest tree" is not actually the smallest. There is another high alpine willow, Salix nivalis or Snow Willow, beside which our Alpine Willow is almost a giant. Snow Willow is about one quarter the size of Alpine Willow. Its leafy stems are barely an inch long, its catkins a third of an inch. It is so rare in the Sierra, however, that very few people have even seen it or know of its existence. I mention it in finishing merely to give baker's measure to my mountaineer's dozen.



THIRD BASE CAMP WAS ALL FUN

by RUTH AIKEN

So-called primitive conditions - away from family and friends - without comforts and conveniences - could we endure such a life? Well, any Third Base Camper will firmly state that "never in his life had he spent such a wonderful two weeks." And even those who had accidents can laugh with the others, especially the girl with a blistered heel acquired while riding in; and the one who sprained her arch, removing a boot in camp, after a tough hike over a hazardous trail; also the MA who chipped an ankle bone walking on 'slick rock' near the end of an arduous climb.

Did the lack of even a sprinkle of rain help? Maybe. And only a few mosquitoes? Surely!

But what was it that provoked such a continuous atmosphere of merriement, contentment, fun?

Let's start at the beginning. Put miles of uphill and downhill trail behind and then be welcomed with a hot soup and tea! Could a specialty served at the finest steak house do as much as that first New York Cut dinner on Hilgard Creek? And, Ah!, the relief of sitting on a granite slab at campfire after long hours on shaks's mares. Thus began two weeks that can only be described as FUN.

That was the theme of Third Base Camp. FUN!

MONDAY, the first day in camp, was spent moving into permanent apartments with better views than those first chosen, in haste, the afternoon before. It was even fun to use the washing machines (well-known buckets and plungers) and the mountain air dryers (rocks and bushes). The ironers? Wrinkles became stylish - if only to prove that we had brought in a minimum of excess. After which - a flower show by Peter Raven and a mineral exhibit by Sherwin Dorris or the snow detail!

When we heard the story of the Whitney Base Camp as told by Peter Raven at campfire that evening, our appreciation of Hilgard Creek Base Camp increased tenfold. Maybe helped by the hot chocolate that became a nightly ritual. Never did an Opera House have a more magnificent backdrop than the campfire-circle's curtain of mountains rising above Bear Creek, painted with the last bit of twilight and twinkling stars.

TUESDAY: First official hike. Some of us were dismayed at finding that we were no longer PHD's or even MA's. Just Grandmas. But Grandmas had the advantage of taking the most scenic and easiest route to Cub Lake with that most popular of leaders, Peter Friedrichsen. But whatever the route, we all had the supreme thrill of lazing by the lake during lunch and admiring Red and White Mountain, far in the distance above the Recesses; Hilgard, Dade and Abbott standing majestically to the north, all bathed in clear sunlight against a blue, blue, sky. Truly a trip to remember!

Hilgard Amphitheater was the destination on THURSDAY, up through hanging meadows, by a sparkling stream, all ending in the awe-inspiring grandeur of the lake and its snow-banked surrounding bowl. Of course some took a higher route and climbed to the notch above the lake. Others went further along the ridge and returned by way of Recess Peak. Each group insisted its route was the most fun!

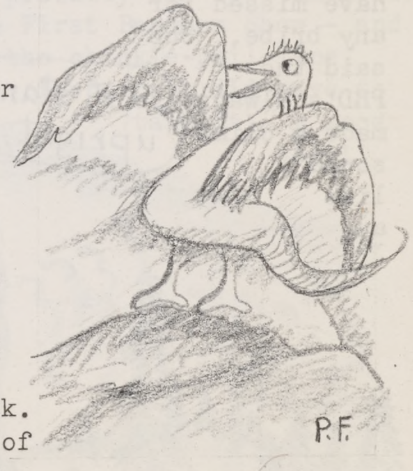
Eagerness for wilderness living, even more primitive than camp life, stimulated Gail Herr, Pat Cone and Charles Mors, with Peter Raven as leader, to start off FRIDAY morning on a knapsack trip by way of Lake Italy, then past Mt. Julius Caesar,

and over rugged Sierra terrain to Granite Basin. Theirs was an experience to be envied, as it was reported to the Stub Camp group at Rose Lake on SATURDAY afternoon. No less exciting were the reports of the PHD's and MA's who had reached the summit of Mt. Hooper on their way to Stub Camp.

But who can say but that perhaps the Grandmas, loitering fancy free along the trail to Rose Lake, did not have the most fun of all. Not a care in the world. Not a thing demanding one's strength or attention - nothing but the crystal clear creeks gurgling to lower levels, and colorful flowers exchanging brilliant smiles with the sun. And to it all we added the satisfaction of knowing that essentials can be reduced to ten pounds!

But all were rewarded with an evening just under heaven (well, the stars WERE that close) as campfire replaced the Alpine glow on happy faces. Not one person would have exchanged his bed of alba-caulis needles for his Sealy mattress at home for the night. Stub Camp may have ended officially the next morning but the enjoyment of the area did not. Some chose to go to Selden Pass "to see what was on the other side of the mountain" - beautiful little Heart Lake. Others fell in love with the Rosebud Lakes and spent a happy day there, but nearly all made their way home by Lake Marie and Bear Creek. What could excel Stub Camp?

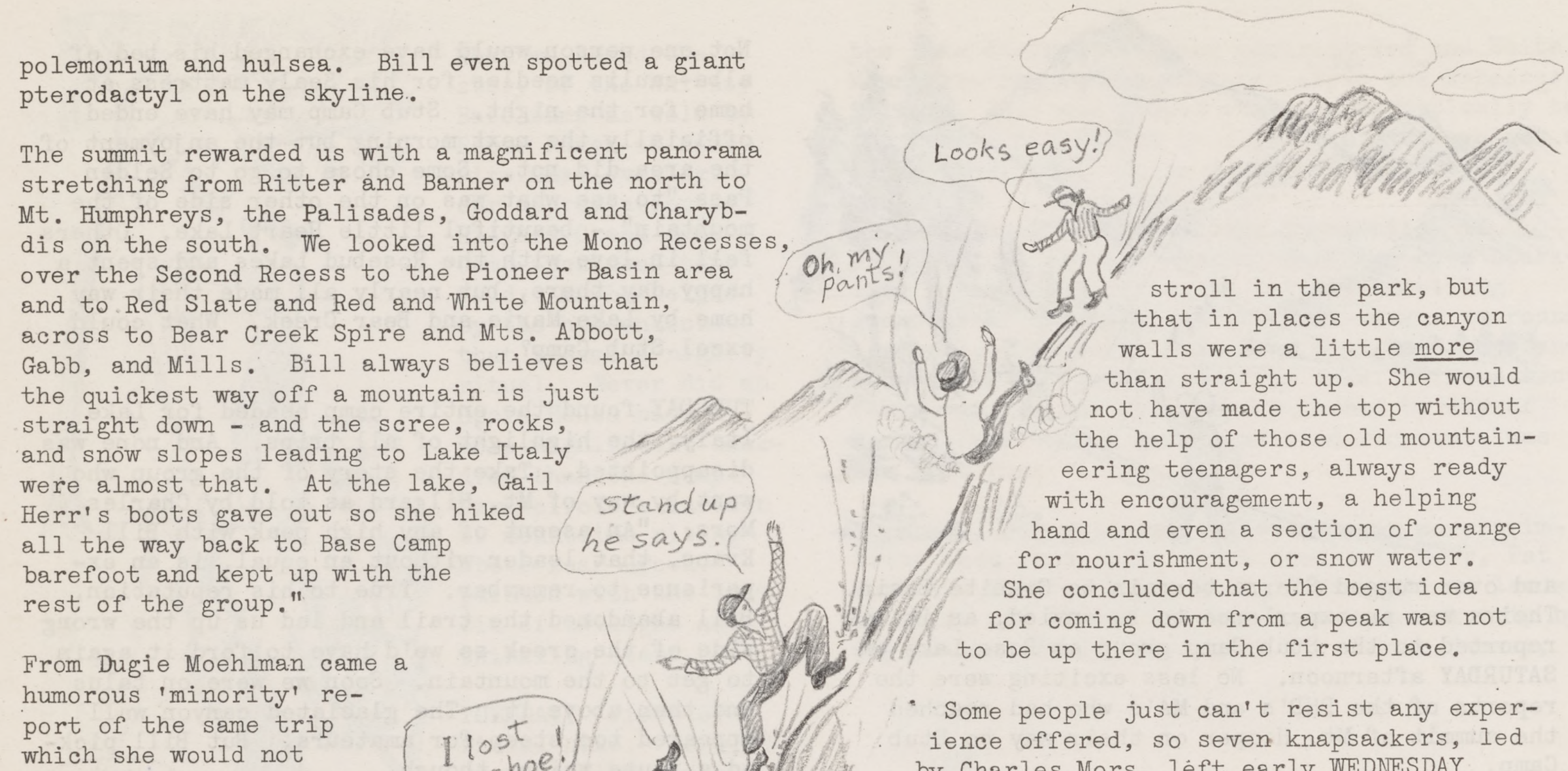
TUESDAY found the entire camp headed for Lake Italy, the highlight of all trips. And none was disappointed. Take the story of the group who went by way of Mt. Hilgard as told by Charles Mors: "An ascent of any high peak with Bill Evans, that leader without an equal, is an experience to remember. True to his reputation, Bill abandoned the trail and led us up the wrong side of the creek so we'd have to ford it again to get to the mountain. Soon we were on talus and then above it. The glaciated canyon wall appeared too steep for amateurs. But Bill picked a route which, though safe, gave most of us some good thrills. As we climbed higher, Mt. Senger and Seven Gables, Mt. Hooper, Marie Lake, and Rose Lake came into view. AFTER A STEEP PITCH we reached the top of the glaciated wall and crossed the ancient plateau where a snowbank provided water and sherbert as we admired nearby Recess Peak. From there to the summit of 13,361 feet, we came upon

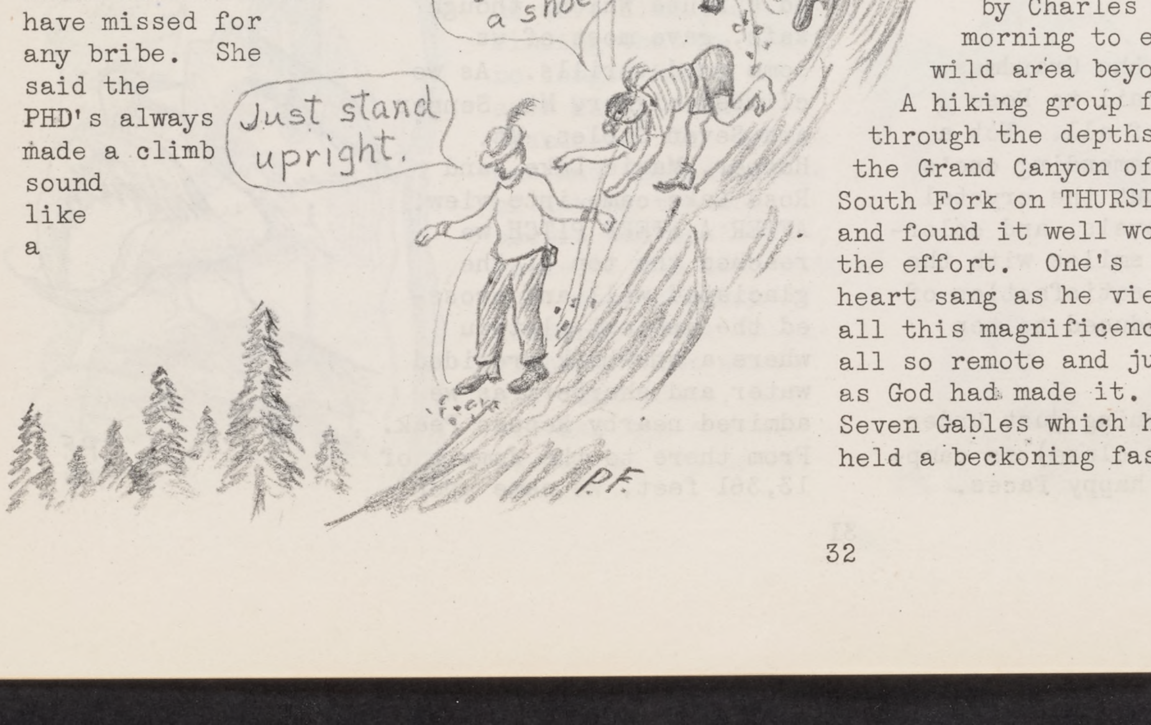


polemonium and hulsea. Bill even spotted a giant pterodactyl on the skyline.

The summit rewarded us with a magnificent panorama stretching from Ritter and Banner on the north to Mt. Humphreys, the Palisades, Goddard and Charybdis on the south. We looked into the Mono Recesses, over the Second Recess to the Pioneer Basin area and to Red Slate and Red and White Mountain, across to Bear Creek Spire and Mts. Abbott, Gabb, and Mills. Bill always believes that the quickest way off a mountain is just straight down - and the scree, rocks, and snow slopes leading to Lake Italy were almost that. At the lake, Gail Herr's boots gave out so she hiked all the way back to Base Camp barefoot and kept up with the rest of the group."

From Dugie Moehlman came a humorous 'minority' report of the same trip which she would not have missed for any bribe. She said the PHD's always made a climb sound like a stroll in the park, but that in places the canyon walls were a little more than straight up. She would not have made the top without the help of those old mountaineering teenagers, always ready with encouragement, a helping hand and even a section of orange for nourishment, or snow water. She concluded that the best idea for coming down from a peak was not to be up there in the first place.

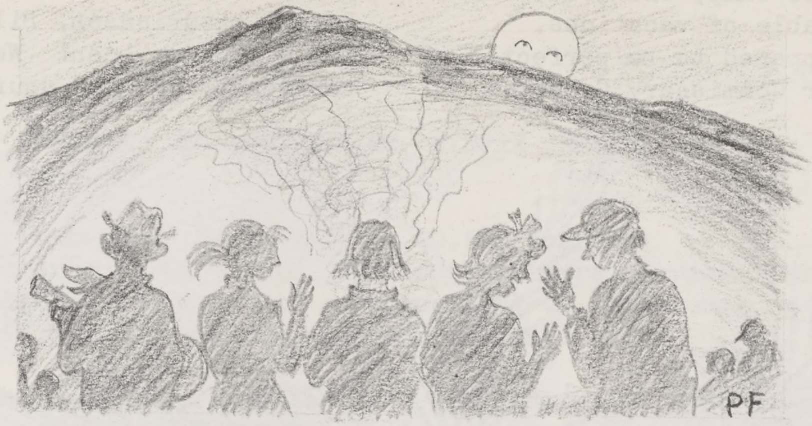

Looks easy!
Oh, my pants!
Stand up he says.


I lost a shoe!
Just stand upright.
P.F.

Some people just can't resist any experience offered, so seven knapsackers, led by Charles Mors, left early WEDNESDAY morning to explore Granite Basin and the wild area beyond V Lake

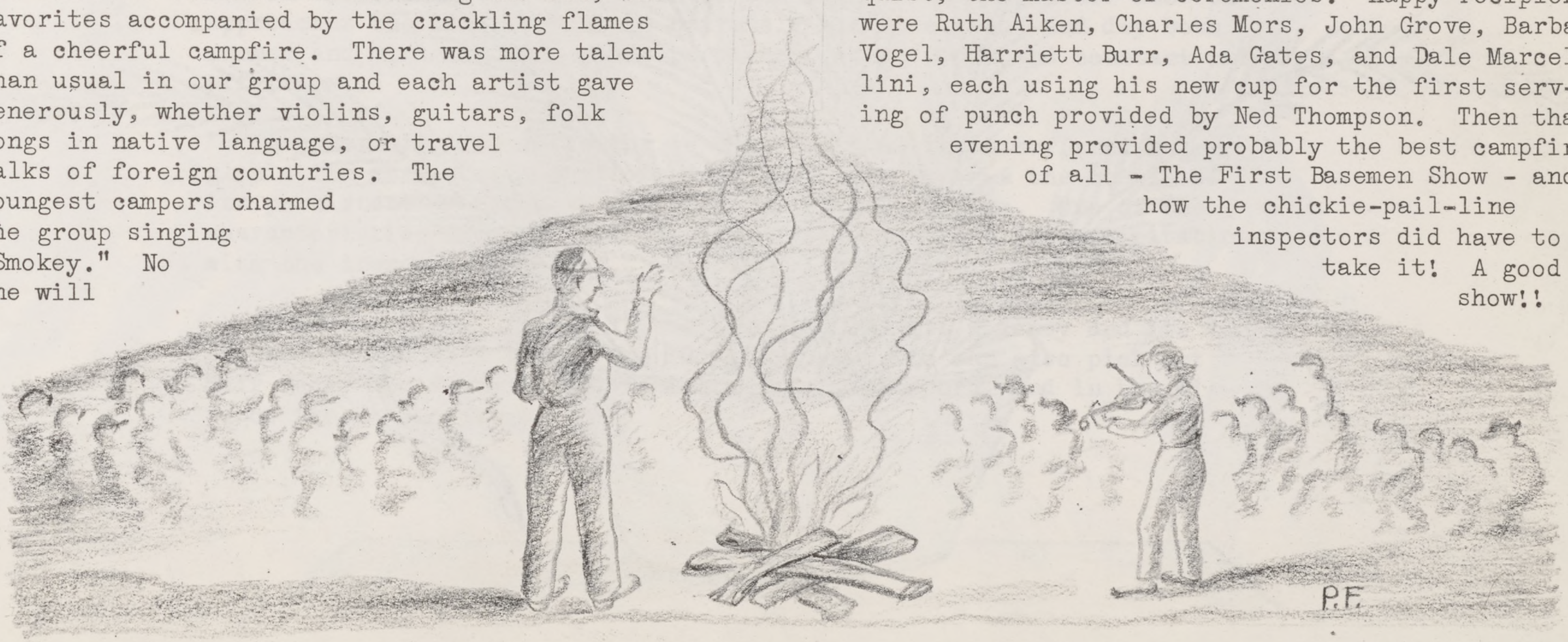
A hiking group followed through the depths of the Grand Canyon of the South Fork on THURSDAY and found it well worth the effort. One's heart sang as he viewed all this magnificence, all so remote and just as God had made it. Seven Gables which had held a beckoning fasci-

cination for everyone became an intimate reality on Thursday for ten climbers led by Bill Evans. Attainment of its summits was like clasping the crown jewels of the entire Bear Creek area.

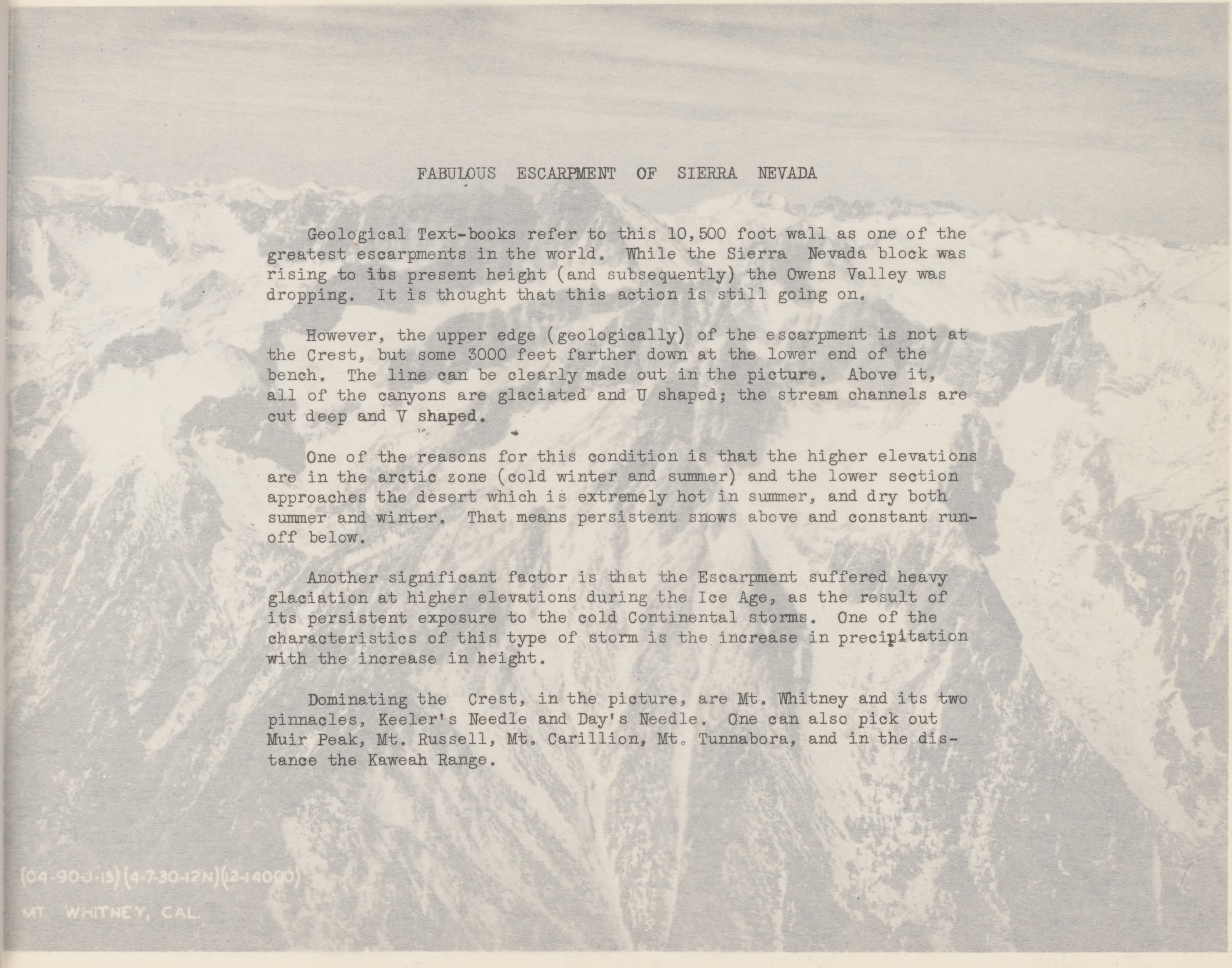


We had come to hike and explore and it had been supreme. But could this alone have provided all the fun and pleasure we were seeking? Maybe. There was more to it than all that - there was also the companionship and entertainment around campfire each evening. These were handled humorously and tastefully by Charles Mors and added tremendously to the sum total of the trip. As twilight faded away, something in the soul was released as one sang the old, old favorites accompanied by the crackling flames of a cheerful campfire. There was more talent than usual in our group and each artist gave generously, whether violins, guitars, folk songs in native language, or travel talks of foreign countries. The youngest campers charmed the group singing "Smokey." No one will ever forget the story of the Sterling-Silver-Handled-Polished-Stainless-Steel-Sierra-Club-Cup! Equally memorable were the Bear Creek Unbearables - the highlight of the Teenager show - who gave us the first complete Base Camp history in song.

As if day after day and night after night had not been one round of fun, the last day was really the climax. The meadow was a perfect setting for the Bandana Show which really consisted of bandanas, hats, natural-objects-arrangements, beards, and gadgets; and the eagerly awaited awarding of Polished Cups by Cliff Youngquist, the master-of-ceremonies. Happy recipients were Ruth Aiken, Charles Mors, John Grove, Barbara Vogel, Harriett Burr, Ada Gates, and Dale Marcellini, each using his new cup for the first serving of punch provided by Ned Thompson. Then that evening provided probably the best campfire of all - The First Basemen Show - and how the chickie-pail-line inspectors did have to take it! A good show!!



So ended two weeks at Base Camp, the best, the most FUN, and most memorable of vacations. Maybe everything just happened to be perfect. But without that superior Commissary Group, Cliff and Charlotte Youngquist, Ned Thompson, Peter Friedrichsen, Bill Evans and Bill Wallace, would it have been? We doubt it - and thanks to each of you and your helpers!



FABULOUS ESCARPMENT OF SIERRA NEVADA

Geological Text-books refer to this 10,500 foot wall as one of the greatest escarpments in the world. While the Sierra Nevada block was rising to its present height (and subsequently) the Owens Valley was dropping. It is thought that this action is still going on.

However, the upper edge (geologically) of the escarpment is not at the Crest, but some 3000 feet farther down at the lower end of the bench. The line can be clearly made out in the picture. Above it, all of the canyons are glaciated and U shaped; the stream channels are cut deep and V shaped.

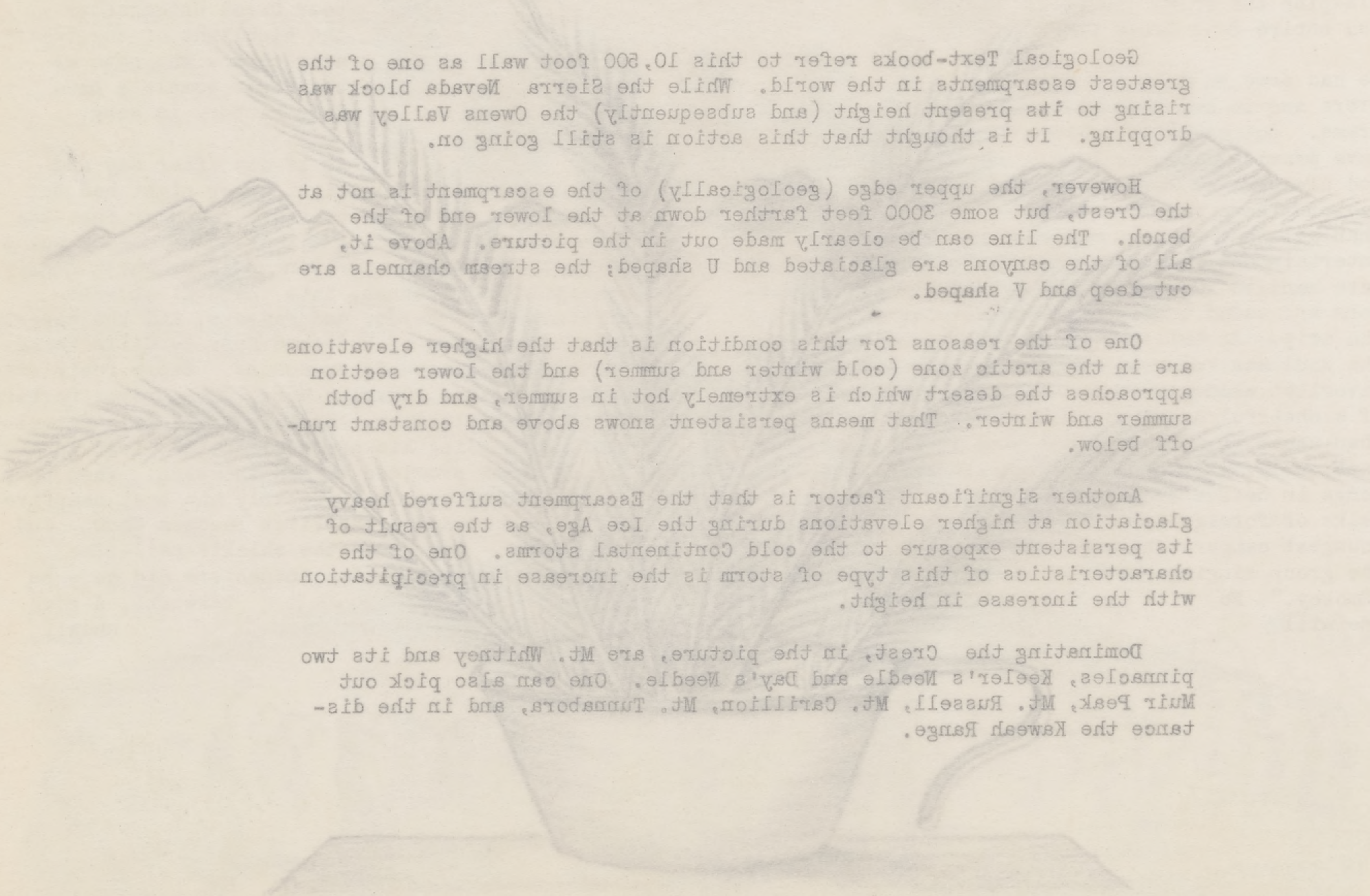
One of the reasons for this condition is that the higher elevations are in the arctic zone (cold winter and summer) and the lower section approaches the desert which is extremely hot in summer, and dry both summer and winter. That means persistent snows above and constant run-off below.

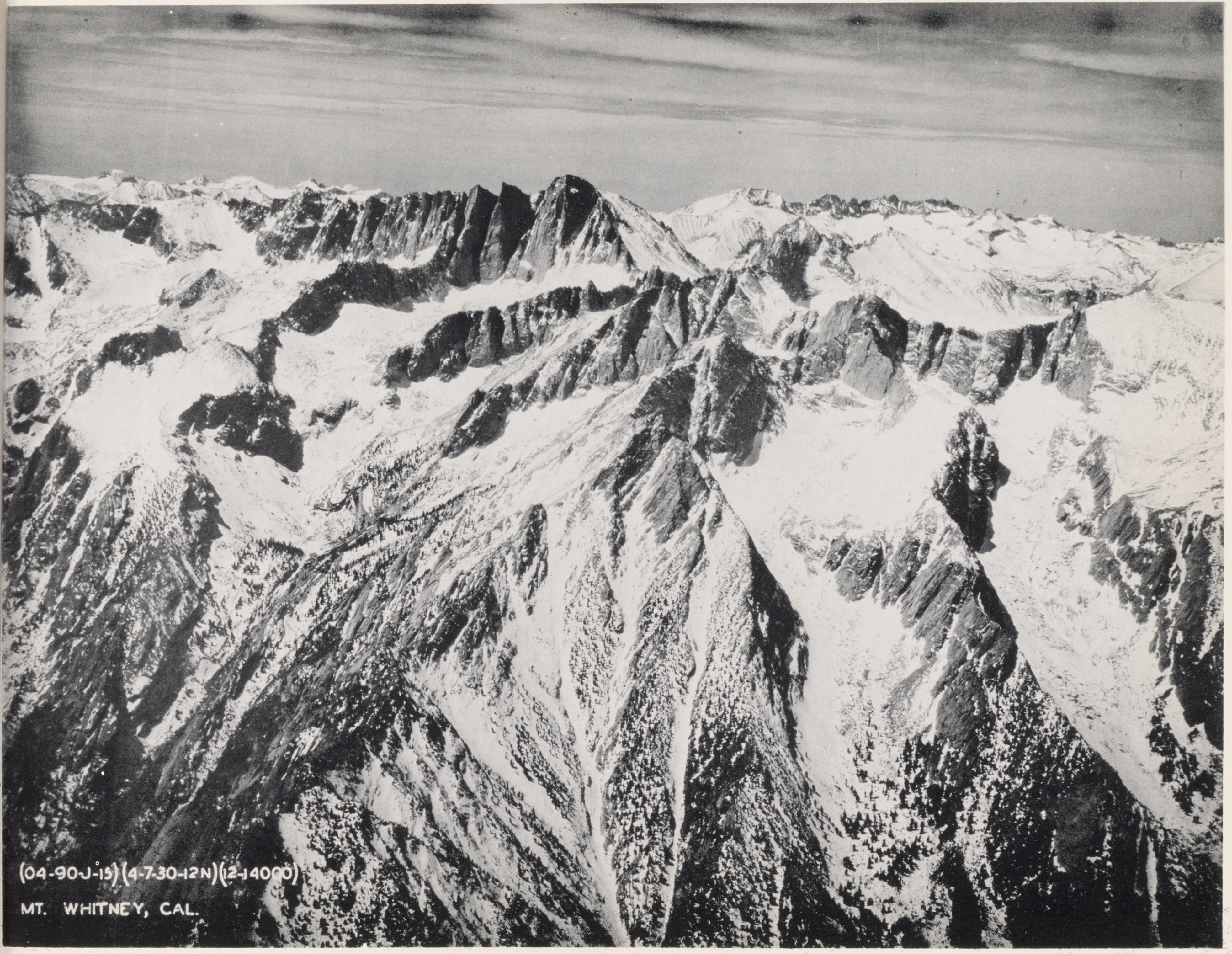
Another significant factor is that the Escarpment suffered heavy glaciation at higher elevations during the Ice Age, as the result of its persistent exposure to the cold Continental storms. One of the characteristics of this type of storm is the increase in precipitation with the increase in height.

Dominating the Crest, in the picture, are Mt. Whitney and its two pinnacles, Keeler's Needle and Day's Needle. One can also pick out Muir Peak, Mt. Russell, Mt. Carillion, Mt. Tunnabora, and in the distance the Kaweah Range.

We ended two weeks at Base Camp, the best, the most FUN, and most memorable of vacations. Maybe everything just happened to be perfect. But without that superior Commissary Group,

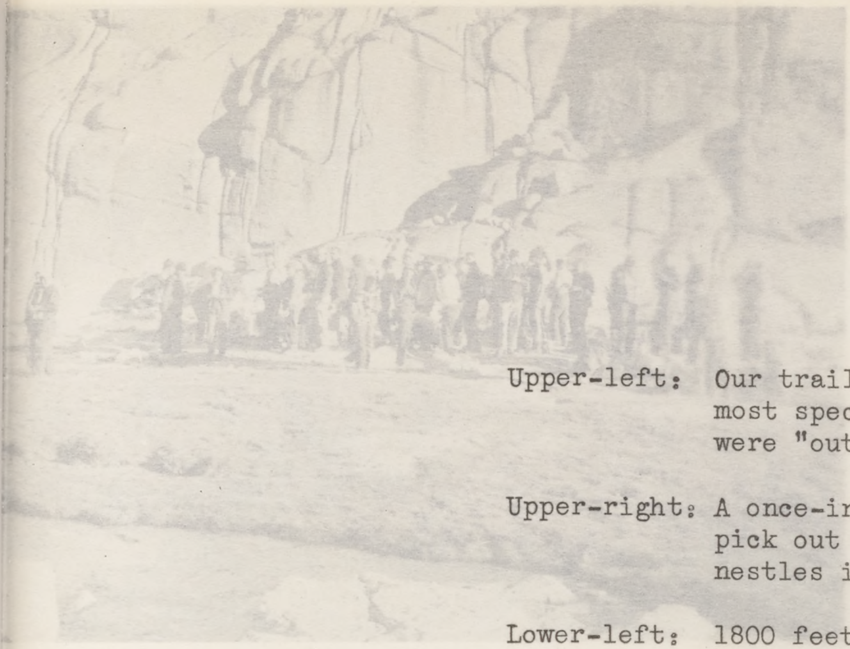
Cliff and Charlotte Youngquist, Ned Thompson, Peter Friedrichsen, Bill [illegible] and Bill Wallace, would it have been? We doubt it - and thanks to each of you and your helpers!

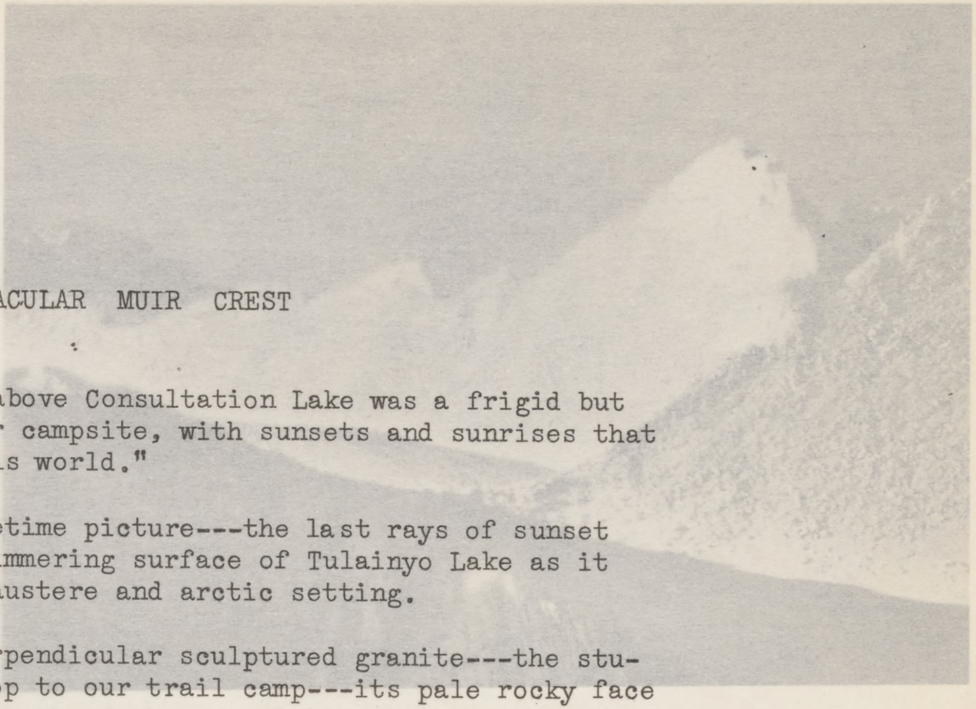


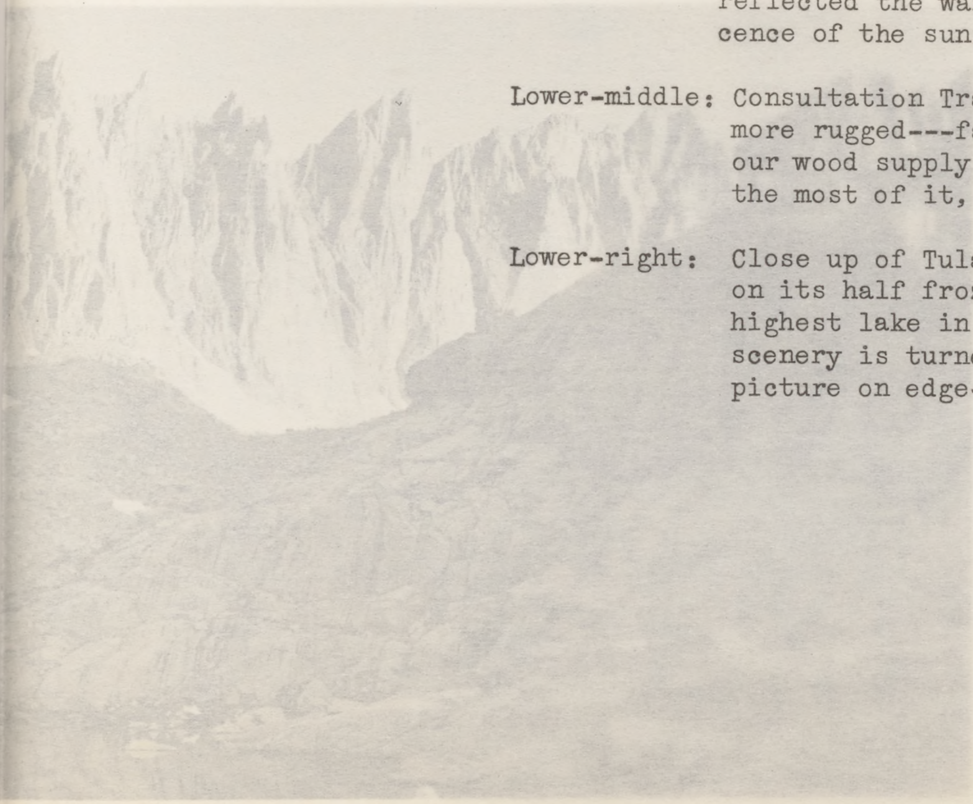


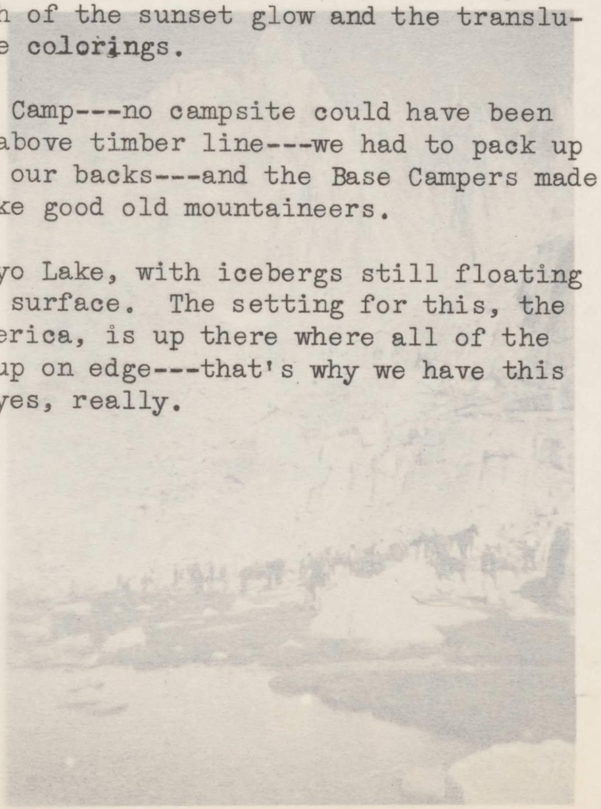
(04-90-J-15) (4-7-30-12N) (12-14000)

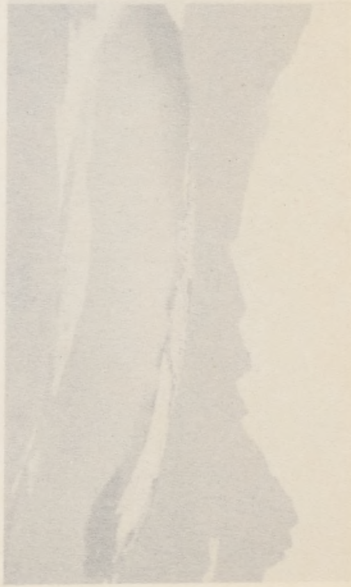
MT. WHITNEY, CAL.











SPECTACULAR MUIR CREST

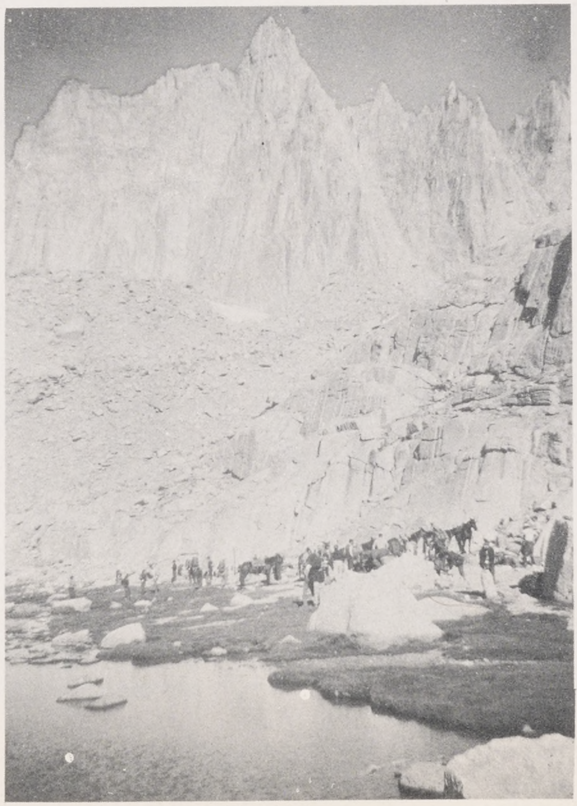
Upper-left: Our trail Camp above Consultation Lake was a frigid but most spectacular campsite, with sunsets and sunrises that were "out of this world."

Upper-right: A once-in-a-lifetime picture---the last rays of sunset pick out the shimmering surface of Tulainyo Lake as it nestles in its austere and arctic setting.

Lower-left: 1800 feet of perpendicular sculptured granite---the stupendous back-drop to our trail camp---its pale rocky face reflected the warmth of the sunset glow and the translucence of the sunrise colorings.

Lower-middle: Consultation Trail Camp---no campsite could have been more rugged---far above timber line---we had to pack up our wood supply on our backs---and the Base Campers made the most of it, like good old mountaineers.

Lower-right: Close up of Tulainyo Lake, with icebergs still floating on its half frozen surface. The setting for this, the highest lake in America, is up there where all of the scenery is turned up on edge---that's why we have this picture on edge---yes, really.



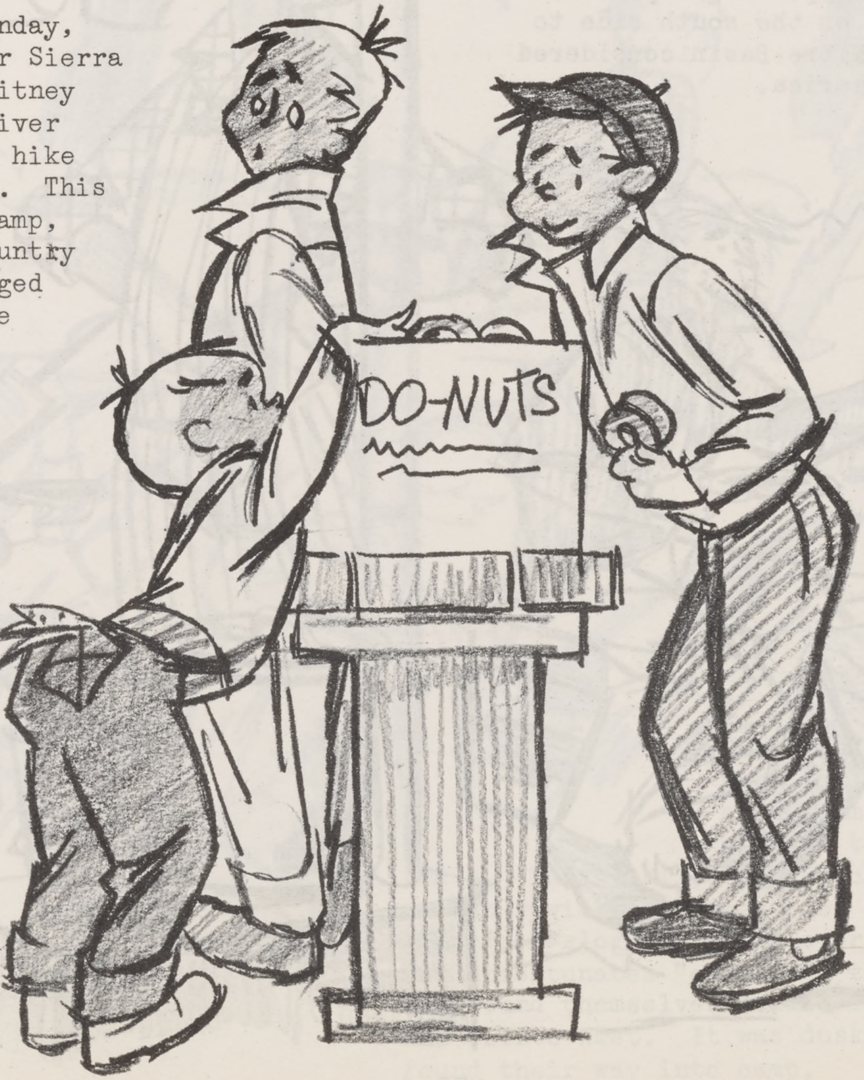
WILDERNESS CAMP

WHITNEY-CRABTREE

REPORTER .. W. J. LANQUIST

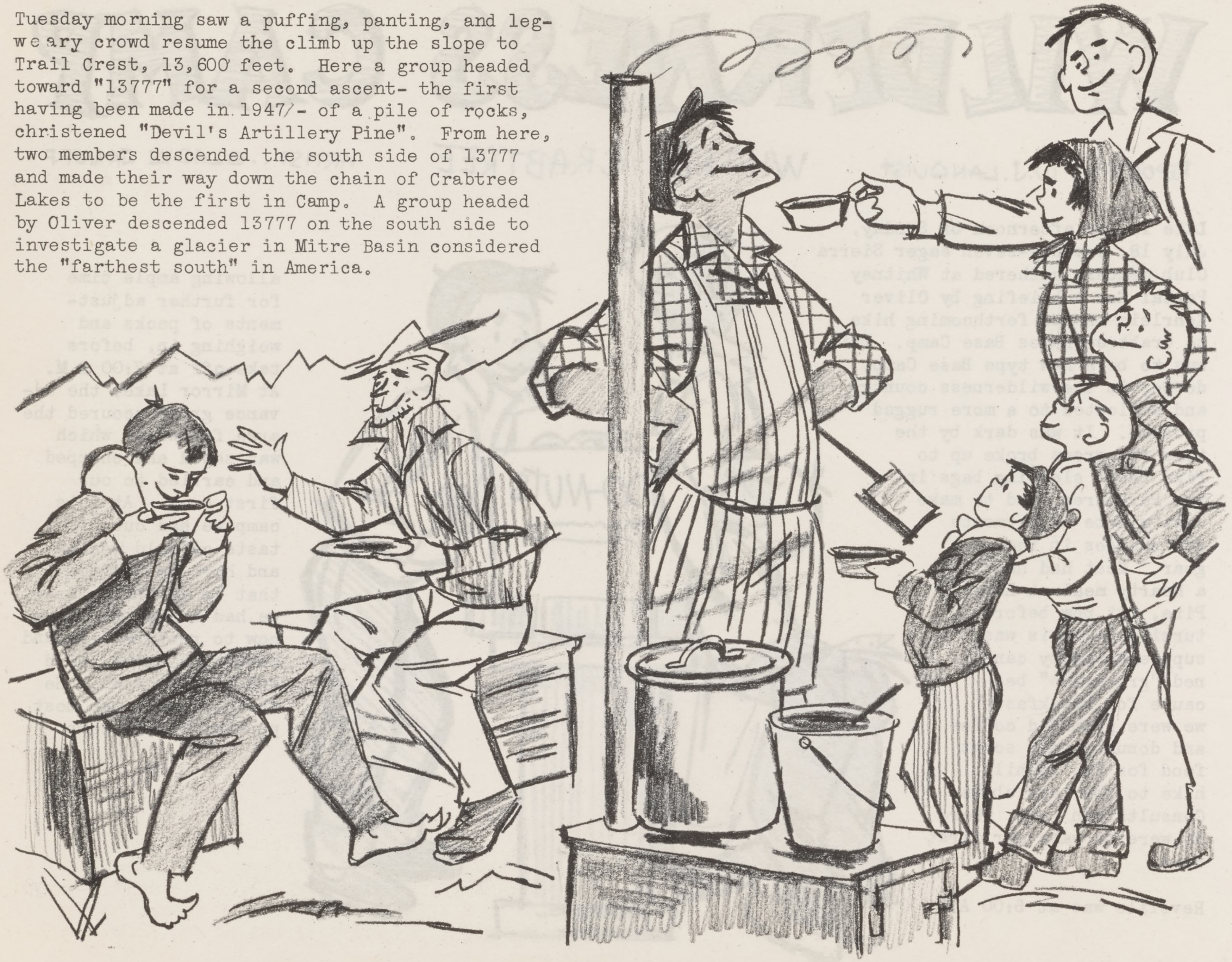
ARTIST .. GLADYS JANOFF

Late in the afternoon of Sunday, July 18, seventy-seven eager Sierra Club members gathered at Whitney Portal for a briefing by Oliver Kehrlein on our forthcoming hike to Crabtree Lakes Base Camp. This was to be a new type Base Camp, deeper in the wilderness country and dedicated to a more rugged program. It was dark by the time the group broke up to find their sleeping bags in the Park area, and to make last minute adjustments and changes in their gear. Most had had a hearty meal at Lone Pine, but now before turning in, this was supplemented by canned "groceries" because for breakfast we were promised coffee and donuts, only scant food for the up-hill hike to the tarn above Consultation Lake, where we were to make our first camp.

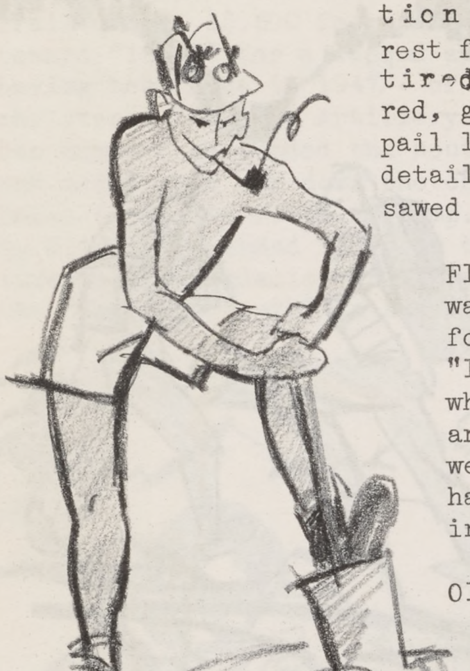


Reveille was at 5:00 A.M. allowing ample time for further adjustments of packs and weighing in, before take-off at 7:00 A.M. At Mirror Lake, the advance group scoured the area for wood, which was sawed and chopped and carried to our first camp. At this camp we had our first taste of cold weather, and here we learned that in Ed Breitwieser, we had a cook who knew how to restore life and hope to a tired, cold and hungry crowd. He was to remain the most popular man in camp.

Tuesday morning saw a puffing, panting, and leg-weary crowd resume the climb up the slope to Trail Crest, 13,600 feet. Here a group headed toward "13777" for a second ascent- the first having been made in 1947/- of a pile of rocks, christened "Devil's Artillery Pine". From here, two members descended the south side of 13777 and made their way down the chain of Crabtree Lakes to be the first in Camp. A group headed by Oliver descended 13777 on the south side to investigate a glacier in Mitre Basin considered the "farthest south" in America.



Talus and scree made the going hard for this group but they managed to make camp long before those who had taken the regular overland trail. This trail, thru Hitchcock Notch, will forever remain vivid in the memories of many members a a gruelling foot-slogging grind over granite switchbacks. A few unfortunates "overshot" the ducks at one of the turns and found themselves headed for Rock Creek, Mt. Guyot, and points West. It was dusk before the last stragglers found their way into camp.



The next day was organization day and a day of great rest for aching muscles and tired feet. Burlaps were rigred, garbage pits dug, chickie pail line established, cook's details organized, and wood sawed and chopped for cook and for the campfire. Flick Flicker, a natural, was the unanimous choice for MC; Ken Kahn the "lost & found man"; while Ken, Don Bull and Paul Wadsworth were elected the harmony boys to lead in campfire singing.

Oliver was taken aback at the number of juveniles and tenderfooters in a camp that was advertised as "rugged". For the following day he announced a conditioning hike to Mt. Guyot, 12,303 feet in height, and a drag of 14 miles. To many of us, the climb seemed stiff, but later we were to look back upon it as a snap for softies. We were also to remember Whitney Creek, where, after having quenched- our thrist, we learned that the water was poluted by a dead mule a short distance upstream.

Saturday morning, about half the camp left for stub camp beyond Big Horn Plateau. Among this group were the eager beavers intent on scaling their five 14,000 foot peaks; altogether eight qualified for certificates.

The heroine of this stub camp was Gladys Janoff, our volunteer cook who with limited equipment and choice of food, kept us happy and content. Around her cookstove hung a happy group of men seeking seconds and thirds, who became known as "vultures".

Our first night at this camp was not an auspicious one. We were beset by rain and lightning, and with few exceptions, bedrolls were soaked.

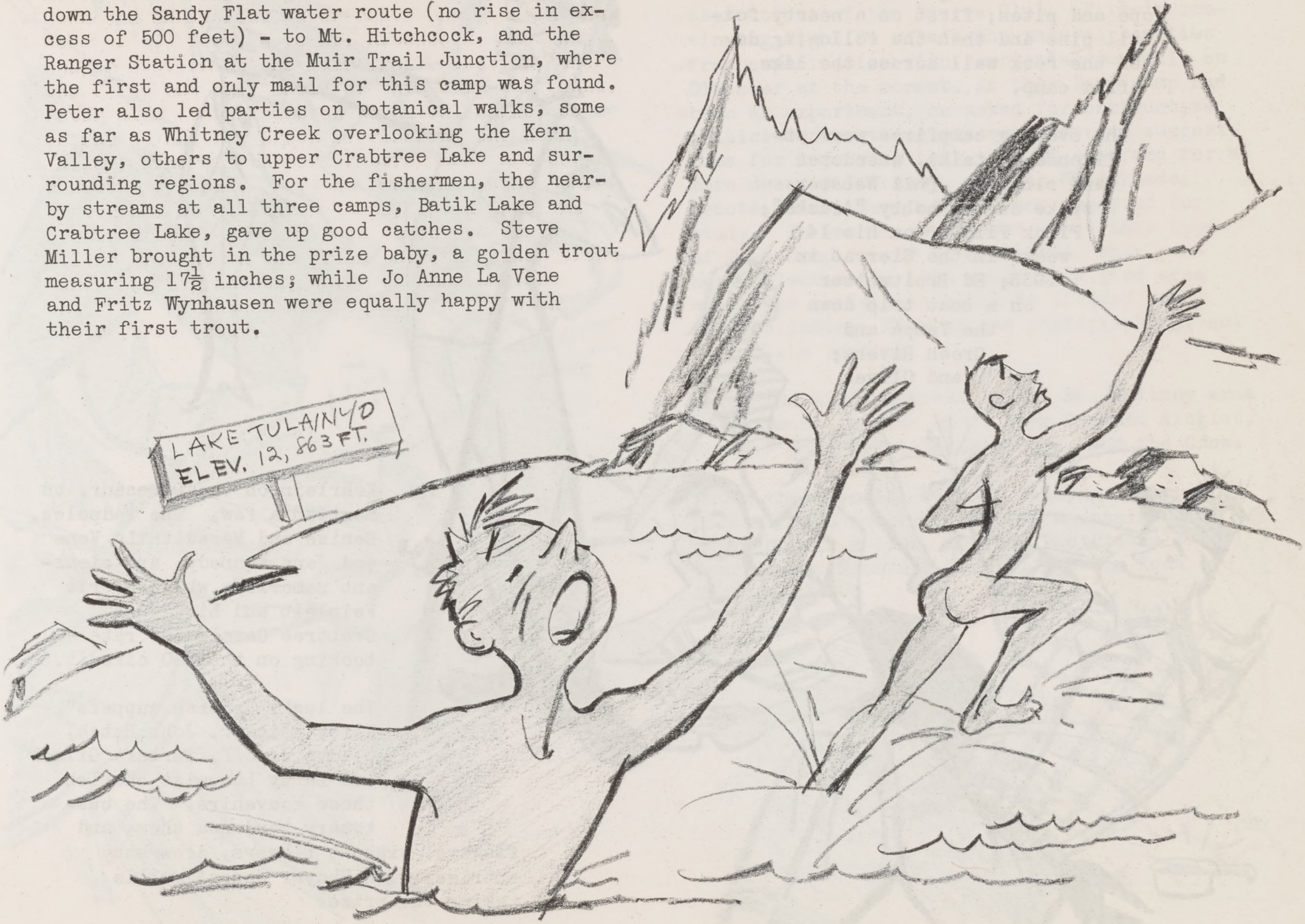
A sleepy and weary group set out early next morning for Shepherd's Pass before striking for Mt. Tyndal. This group was forced to descend because of rain when within 100 feet or so of the top of the 14,000 footer. Hervey Voge waited for forty-five minutes but as the rain did not abate, he reluctantly gave the order to descend.

This was supposed to be a moral victory, but unfortunately it is not recognized by the Club in making awards. Jim Koontz also called off his scheduled climb of Mt. Williams. A smaller group did climb and explore the Diamond Mesa.

After an early supper, camp was broken up and we moved on to Wright Creek, a beautiful location. The following day with the weather promising, climbs of Mt. Russell, led by Hervey Voge and Oliver Kehrlein, and Mt. Williams led by Jim Koontz, got under way. Both climbs were successful. A small party again climbed Diamond Mesa, while another party trailed along with the Mt. Russell group until they reached Lake Tulainyo - the highest lake in the U.S.A. - where they stopped to photograph. This party also fished lower Wallace Lake and Wales Lake with good success. Two members of the Mt. Russell group. Hervey Voge and Don Carder, on their way back, achieved the distinction of having the shortest and fastest swim in the highest (and coldest) lake in the U.S.A.

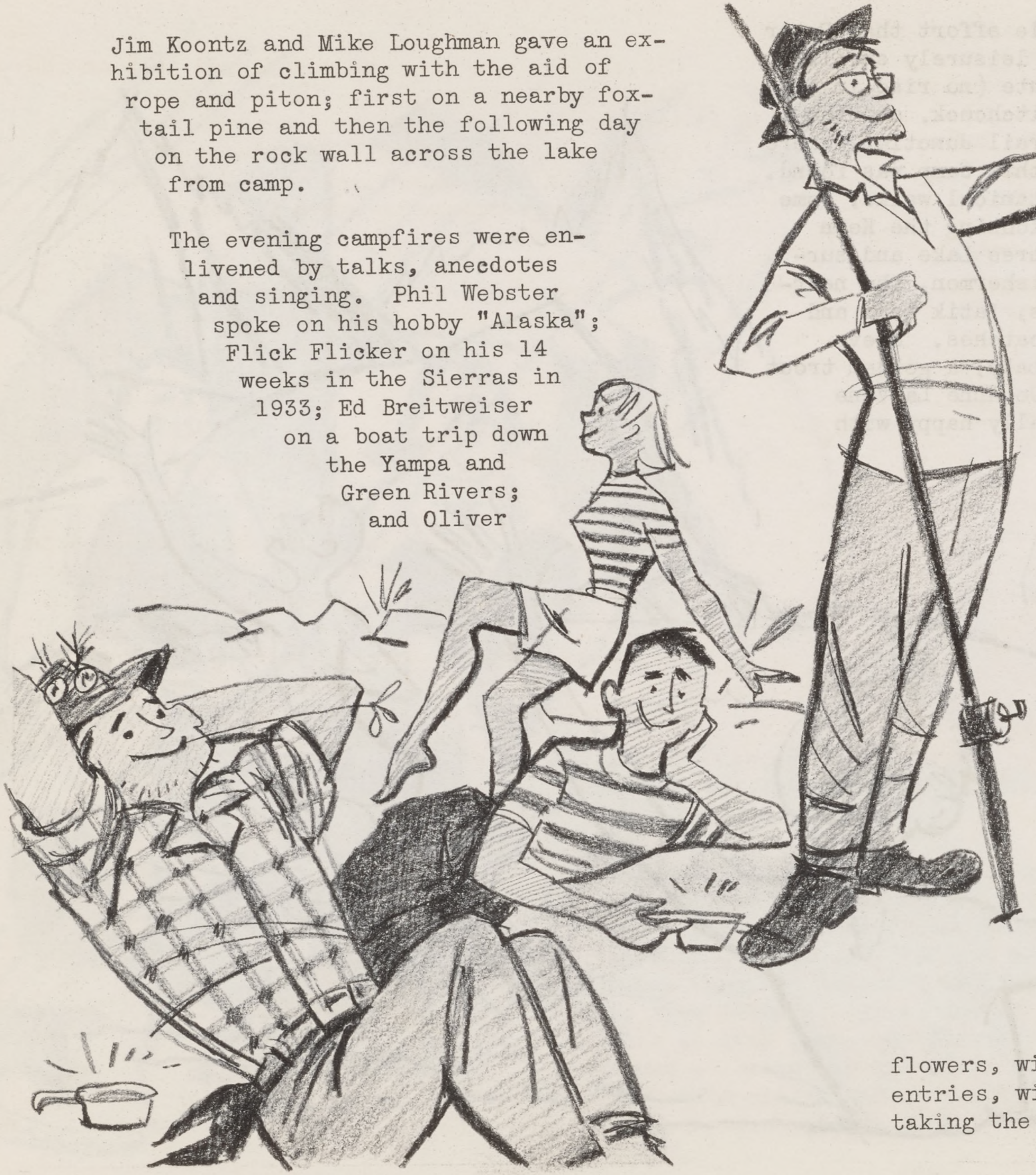
The next day Mt. Russell was again climbed, Jim Koontz leading a party up a new route on its north face; Mt. Barnard was also "walked up" by Oliver Kehrlein and his party. Those not climbing, broke camp and got an early start back to Crabtree Lakes Camp. At Crabtree Camp church services were conducted by Dick Kennedy. Also, during the period while the climbers were at stub camp, the softies organized several associations aimed at bettering the moral and keeping up the spirits of this rain-soaked camp. Crabtree Ran-ier Association; Tea & Crumpet Association: Crabtree Bridge Association, to mention a few.

It was only after considerable effort that Peter Raven was able to organize a leisurely stroll down the Sandy Flat water route (no rise in excess of 500 feet) - to Mt. Hitchcock, and the Ranger Station at the Muir Trail Junction, where the first and only mail for this camp was found. Peter also led parties on botanical walks, some as far as Whitney Creek overlooking the Kern Valley, others to upper Crabtree Lake and surrounding regions. For the fishermen, the nearby streams at all three camps, Batik Lake and Crabtree Lake, gave up good catches. Steve Miller brought in the prize baby, a golden trout measuring 17½ inches; while Jo Anne La Vene and Fritz Wynhausen were equally happy with their first trout.



Jim Koontz and Mike Loughman gave an exhibition of climbing with the aid of rope and piton; first on a nearby foxtail pine and then the following day on the rock wall across the lake from camp.

The evening campfires were enlivened by talks, anecdotes and singing. Phil Webster spoke on his hobby "Alaska"; Flick Flicker on his 14 weeks in the Sierras in 1933; Ed Breitweiser on a boat trip down the Yampa and Green Rivers; and Oliver Kehrlein on the Dinosaur, to mention a few. The Tadpoles, Denise and Meredith La Vene and Jane Kennedy, are pleasant memories; while Morris Feinleib and his "1954 Crabtree Cavalcade" rate a booking on the RKO circuit.

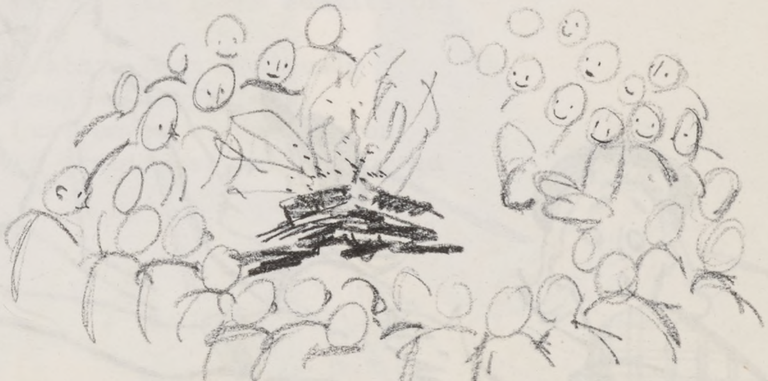


The lucky "polish cuppers" Flick Flicker, John Hatch, Gladys Janoff, Barbara Gilmer and Lanky Lanquist cherish these souvenirs. The customary bandanna show, and flowers, without flowers, drew many entries, with Thayer Jones' mobile taking the prize.

Oliver Kehrlein gave an impassioned talk on the aspirations of the Sierra Club, of their continuing fight to retain the natural beauties from exploitation with particular emphasis on Dinosaur at the moment. As this Base Camp had been an experiment, he asked for constructive criticism from those present. Several suggestions for improving this type of camp and for a more descriptive name, such as Wilderness, Remote, etc., were offered and accepted for study. It was the consensus that this type of Base Camp should be continued, that perhaps Milestone in 1955 would be a good area where the activities could be divided between climbing, fishing and photographing, and just plain loafing.

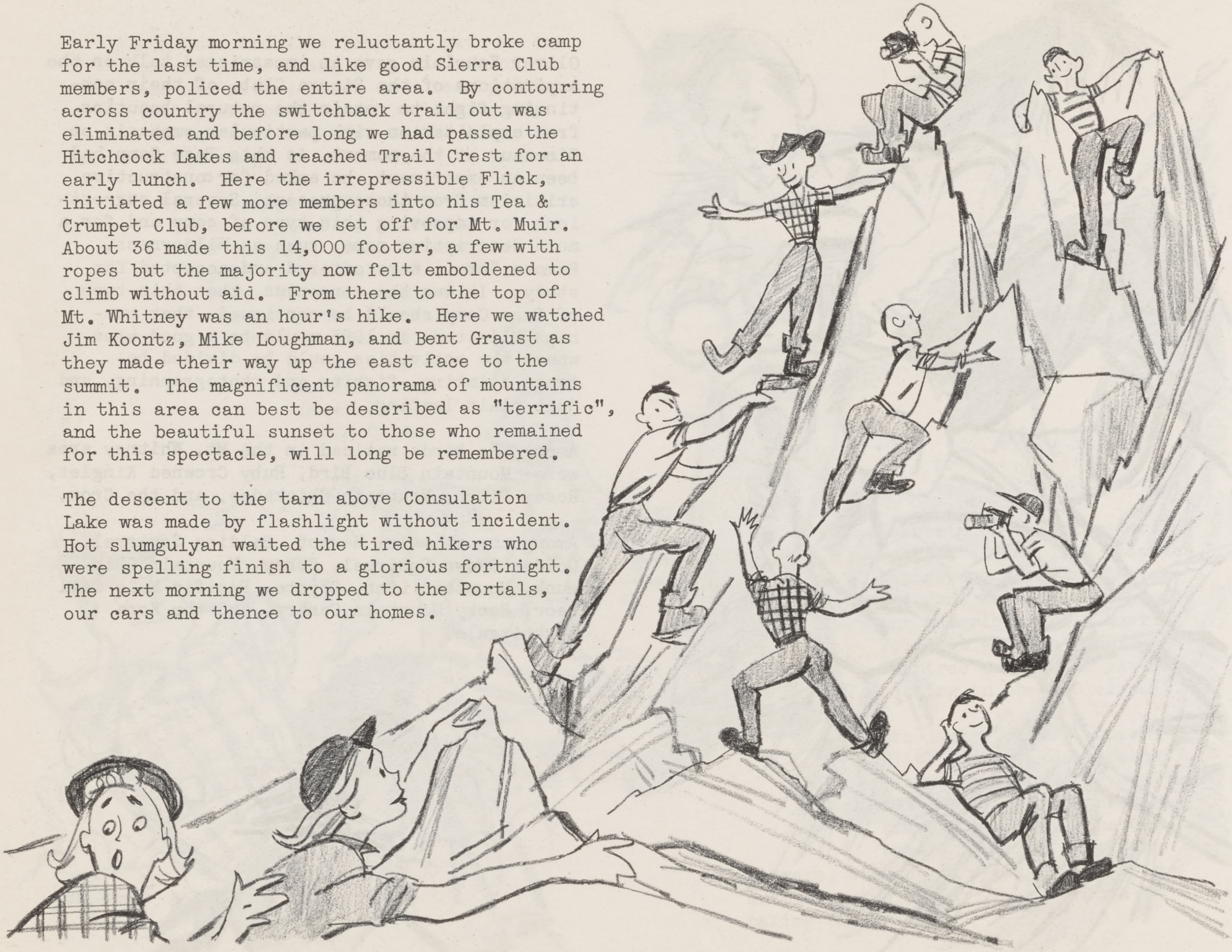
Among the birds noticed in the Mt. Whitney area were: Mountain Blue Bird, Ruby Crowned Kinglet, Rosey Finch, Mountain Chickadee, and the Crow.

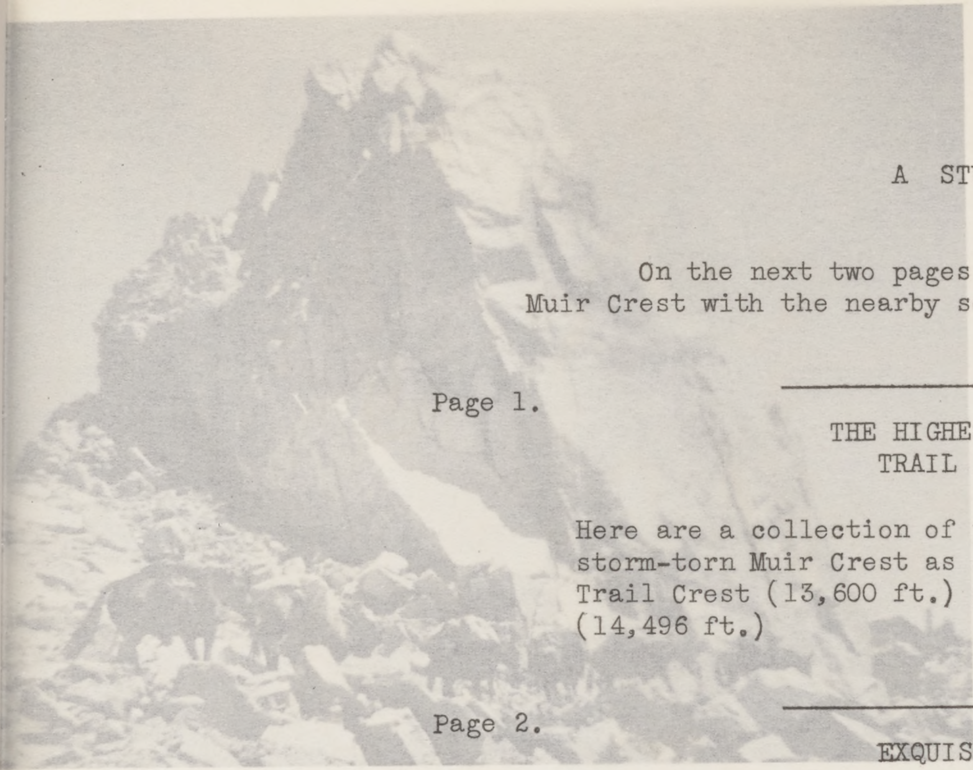
Among the animals: Marmot, Balding Squirrel, Golden Crown Squirrel, Coney, Mountain Chipmunk, Mountain Lion, Coyote, Pacific Mule Tail Deer, Rocky Mountain Canary, and the Kona Nightingale.

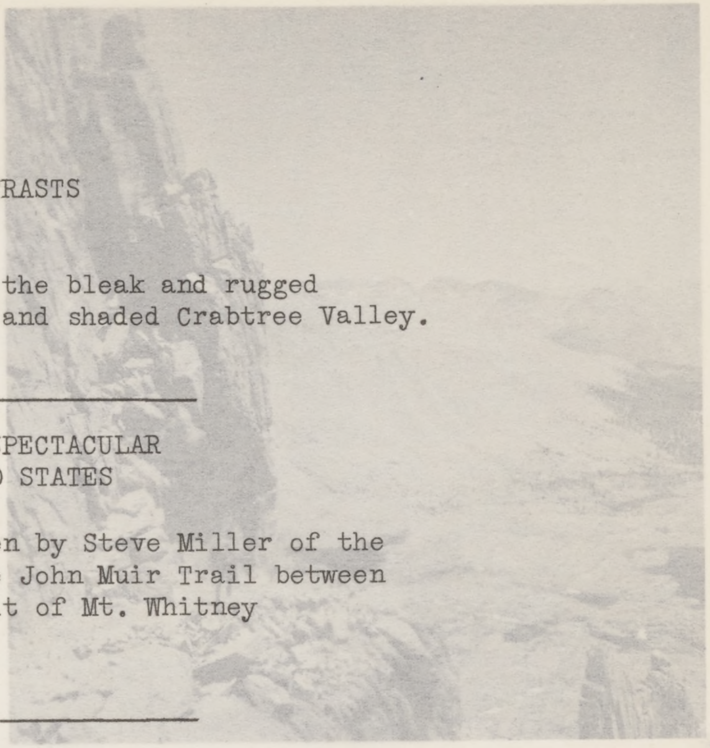


Early Friday morning we reluctantly broke camp for the last time, and like good Sierra Club members, policed the entire area. By contouring across country the switchback trail out was eliminated and before long we had passed the Hitchcock Lakes and reached Trail Crest for an early lunch. Here the irrepressible Flick, initiated a few more members into his Tea & Crumpet Club, before we set off for Mt. Muir. About 36 made this 14,000 footer, a few with ropes but the majority now felt emboldened to climb without aid. From there to the top of Mt. Whitney was an hour's hike. Here we watched Jim Koontz, Mike Loughman, and Bent Graust as they made their way up the east face to the summit. The magnificent panorama of mountains in this area can best be described as "terrific", and the beautiful sunset to those who remained for this spectacle, will long be remembered.

The descent to the tarn above Consulation Lake was made by flashlight without incident. Hot slumgulyan waited the tired hikers who were spelling finish to a glorious fortnight. The next morning we dropped to the Portals, our cars and thence to our homes.







A STUDY IN CONTRASTS

On the next two pages we contrast the bleak and rugged Muir Crest with the nearby softly molded and shaded Crabtree Valley.

Page 1.

THE HIGHEST AND MOST SPECTACULAR TRAIL IN THE UNITED STATES

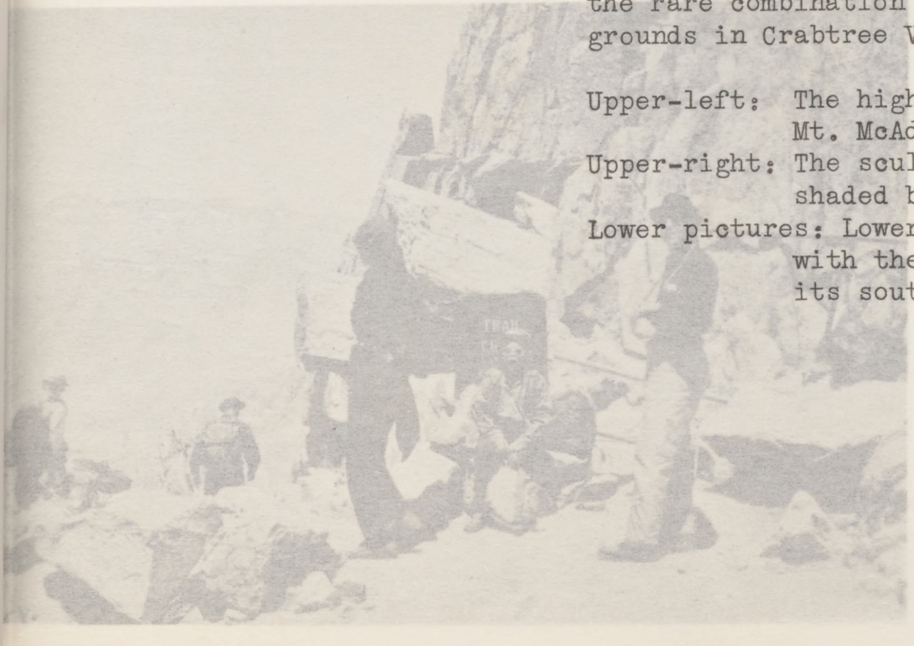
Here are a collection of pictures taken by Steve Miller of the storm-torn Muir Crest as seen from the John Muir Trail between Trail Crest (13,600 ft.) and the Summit of Mt. Whitney (14,496 ft.)

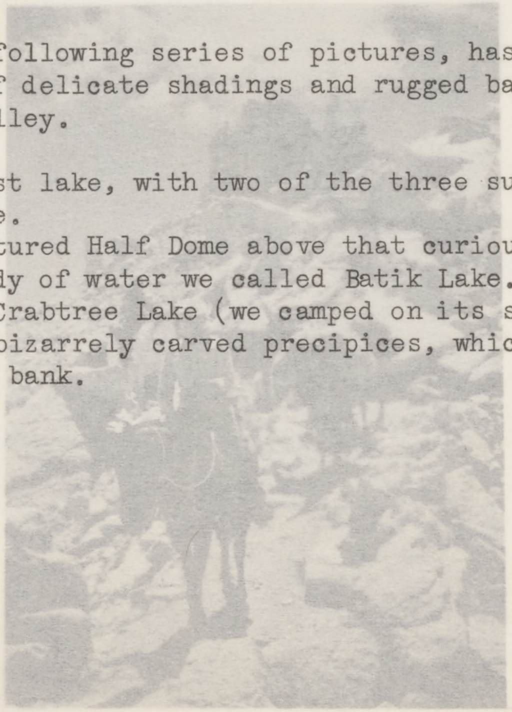
Page 2.

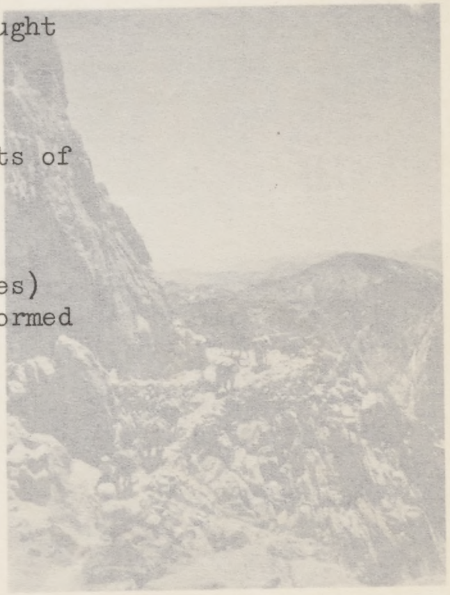
EXQUISITE CRABTREE VALLEY AND ITS COLORFUL LAKES

Andrew Crofut, in the following series of pictures, has caught the rare combination of delicate shadings and rugged backgrounds in Crabtree Valley.

Upper-left: The highest lake, with two of the three summits of Mt. McAdie.
Upper-right: The sculptured Half Dome above that curiously shaded body of water we called Batik Lake.
Lower pictures: Lower Crabtree Lake (we camped on its shores) with the bizarrely carved precipices, which formed its south bank.

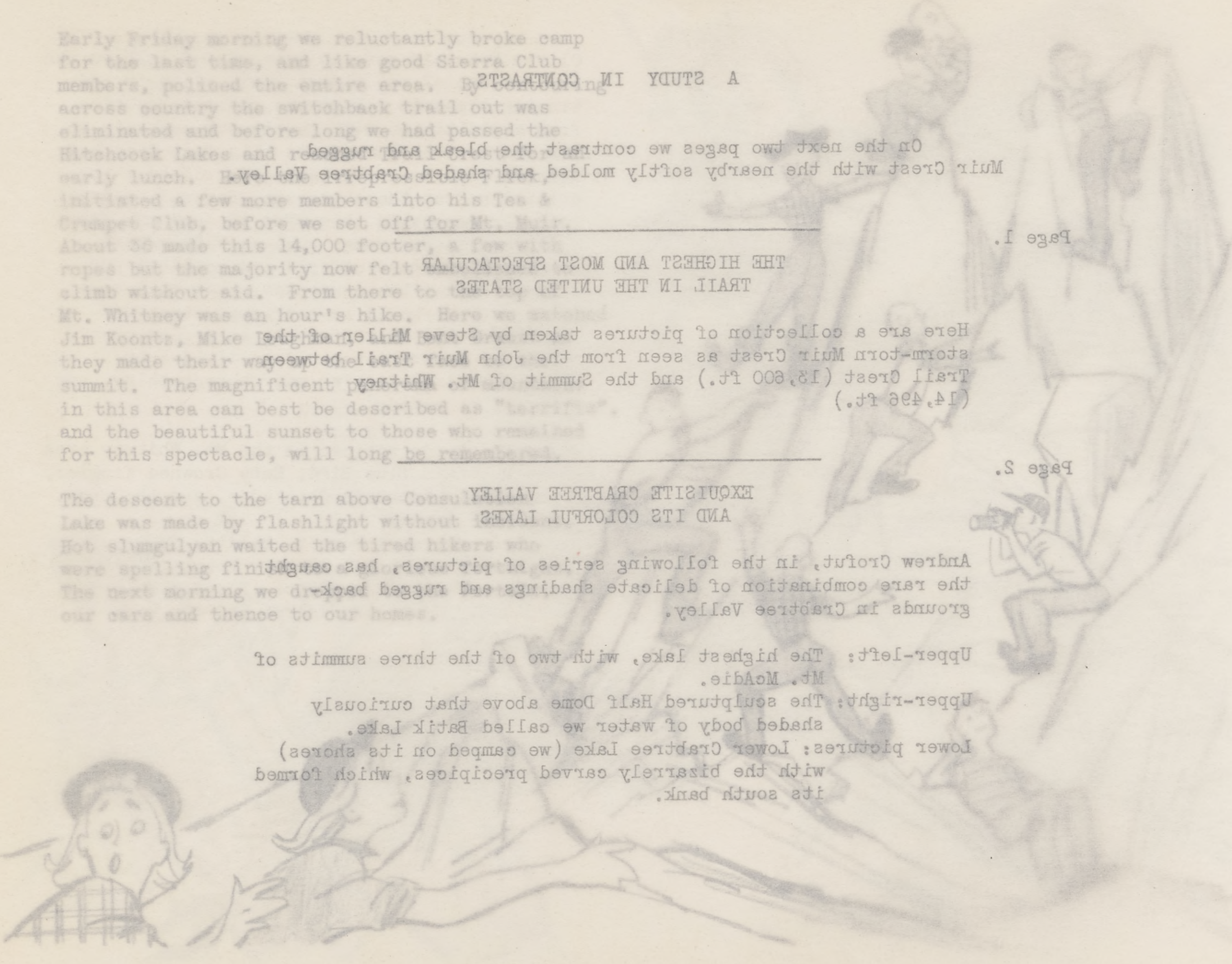


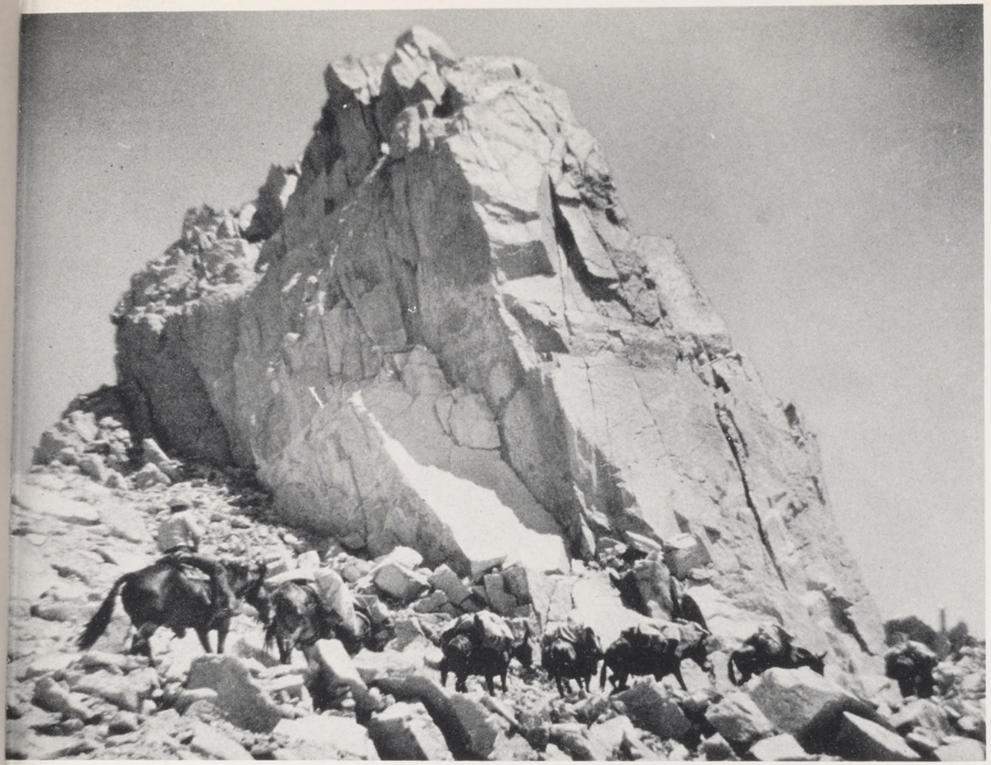


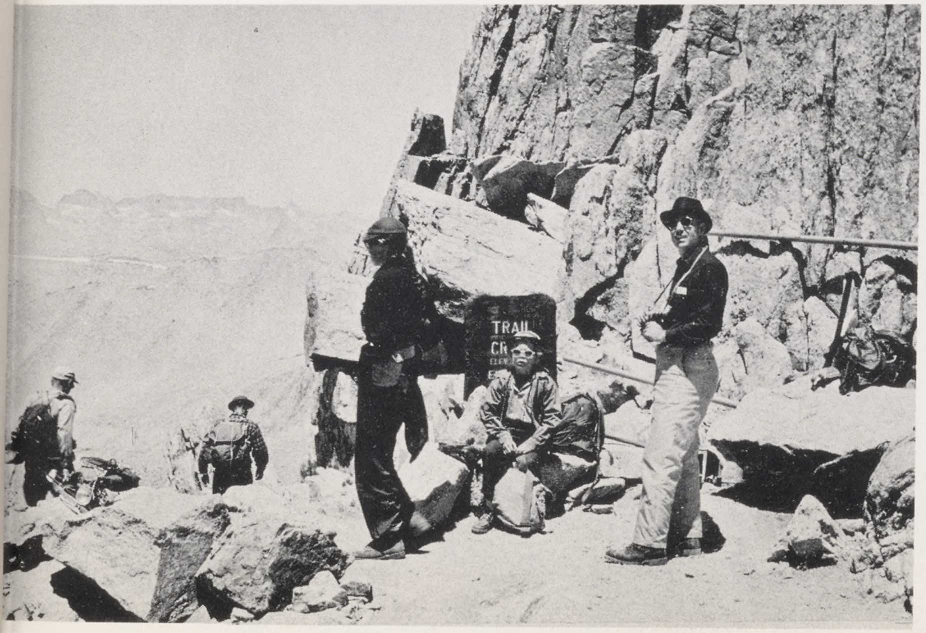


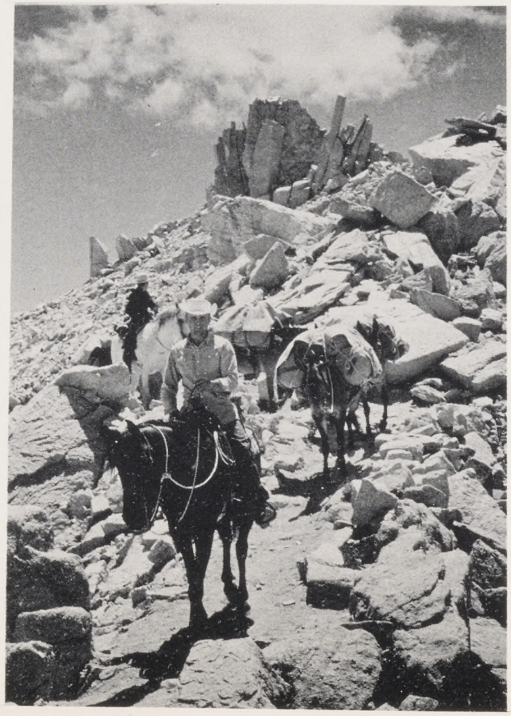
Early Friday morning we reluctantly broke camp for the last time, and like good Sierra Club members, policed the entire area. By contouring across country the switchback trail out was eliminated and before long we had passed the Hitchcock Lakes and reached Trail Crest for an early lunch. Here the irrepressible Fleck, initiated a few more members into his Tea & Crumpet Club, before we set off for Mt. Muir. About 36 made this 14,000 footer, a few with ropes but the majority now felt confident to climb without aid. From there to the top of Mt. Whitney was an hour's hike. Here we watched Jim Koontz, Mike Loughman, [illegible] they made their way up the east face to the summit. The magnificent panorama [illegible] in this area can best be described as "terrific". and the beautiful sunset to those who remained for this spectacle, will long be remembered.

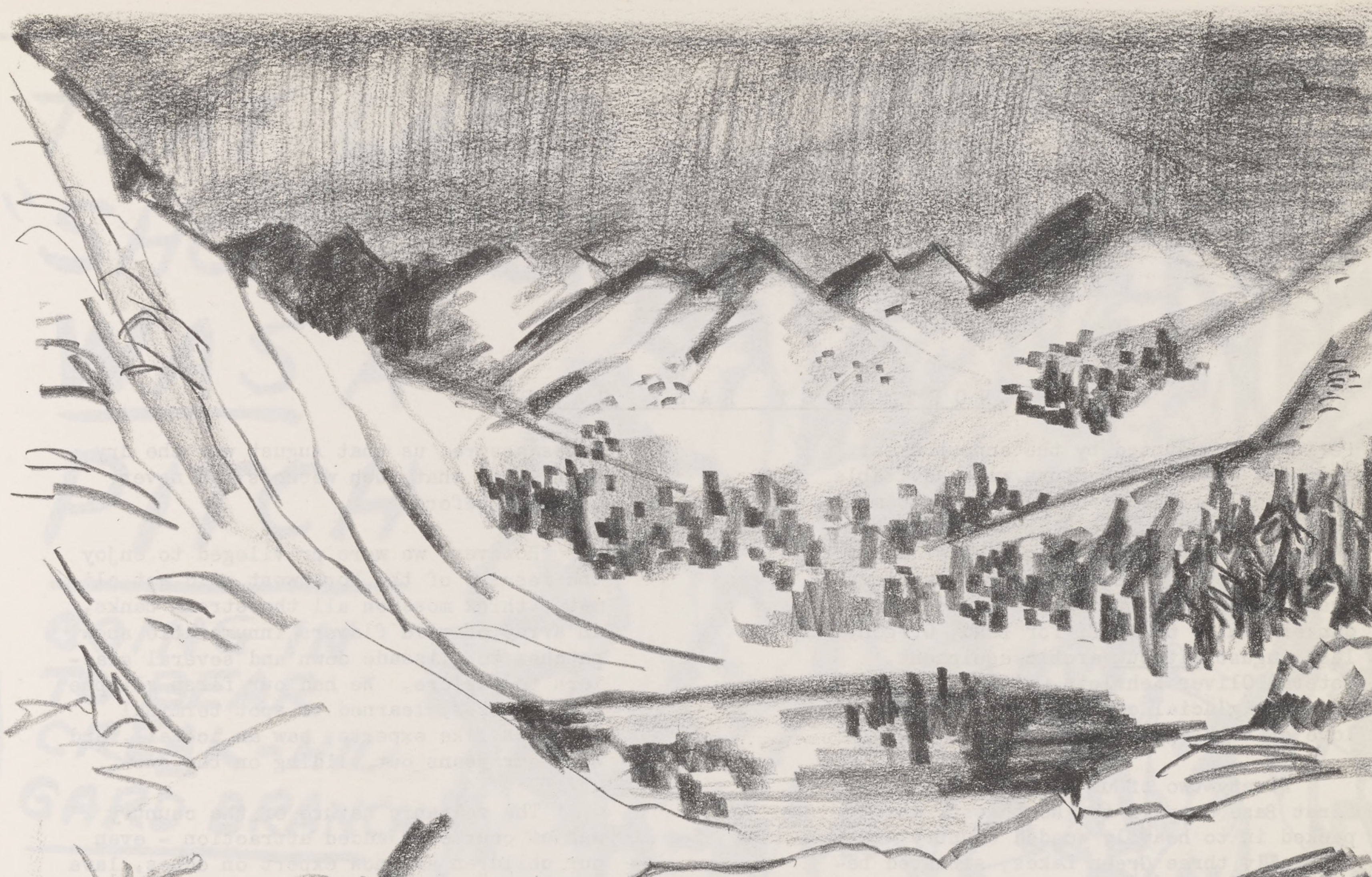
The descent to the tarn above Consultation Lake was made by flashlight without incident. Hot slumgulyan waited the tired hikers who were spelling finis [illegible]. The next morning we dropped down to our cars and thence to our homes.

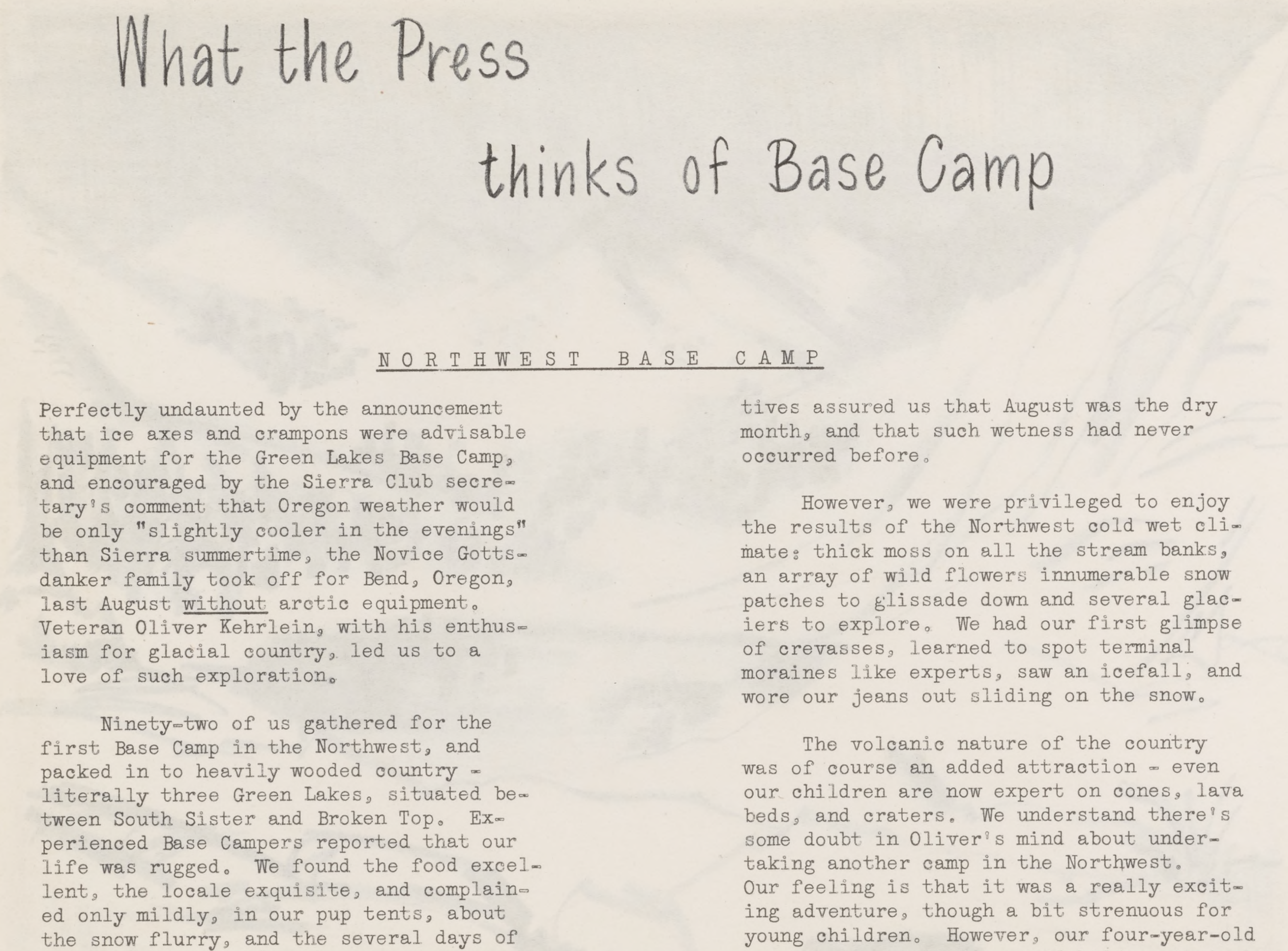





TRAIL
CR




JANOFF



What the Press thinks of Base Camp

NORTHWEST BASE CAMP

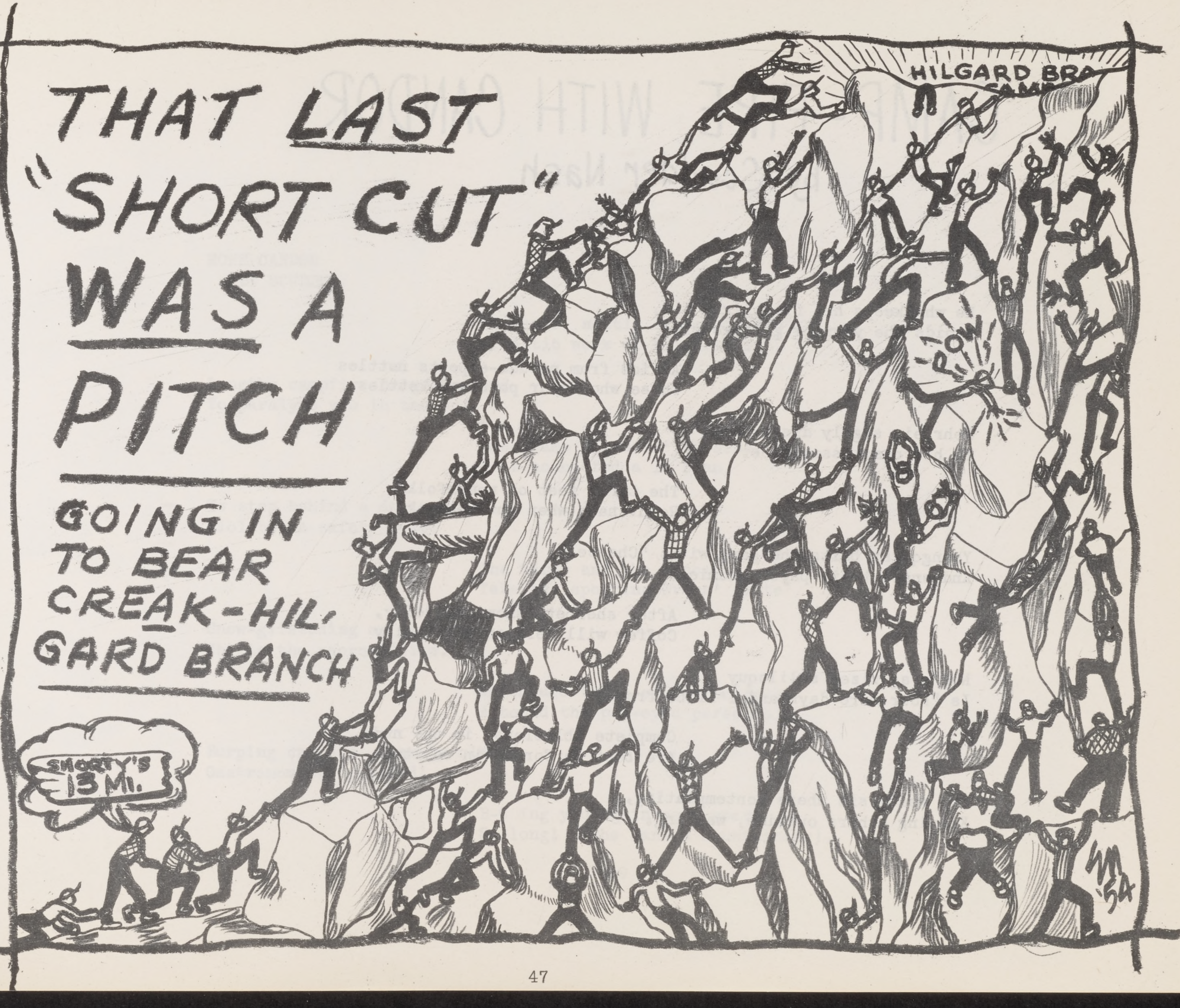
Perfectly undaunted by the announcement that ice axes and crampons were advisable equipment for the Green Lakes Base Camp, and encouraged by the Sierra Club secretary's comment that Oregon weather would be only "slightly cooler in the evenings" than Sierra summertime, the Novice Gottsdanker family took off for Bend, Oregon, last August without arctic equipment. Veteran Oliver Kehrlein, with his enthusiasm for glacial country, led us to a love of such exploration.

Ninety-two of us gathered for the first Base Camp in the Northwest, and packed in to heavily wooded country - literally three Green Lakes, situated between South Sister and Broken Top. Experienced Base Campers reported that our life was rugged. We found the food excellent, the locale exquisite, and complained only mildly, in our pup tents, about the snow flurry, and the several days of continuous rain. (Very honest-looking natives assured us that August was the dry month, and that such wetness had never occurred before.

However, we were privileged to enjoy the results of the Northwest cold wet climate: thick moss on all the stream banks, an array of wild flowers innumerable snow patches to glissade down and several glaciers to explore. We had our first glimpse of crevasses, learned to spot terminal moraines like experts, saw an icefall, and wore our jeans out sliding on the snow.

The volcanic nature of the country was of course an added attraction - even our children are now expert on cones, lava beds, and craters. We understand there's some doubt in Oliver's mind about undertaking another camp in the Northwest. Our feeling is that it was a really exciting adventure, though a bit strenuous for young children. However, our four-year-old can sometime tell her grandchildren that she has signed her name at the top of Bachelor's Butte.

Bob Gortsdanker
in Condor Call


THAT LAST "SHORT CUT" WAS A PITCH
GOING IN TO BEAR CREAK-HILGARD BRANCH
HILGARD BRA
CAMP
POW!
SHORTY'S 13 MI.
WM '54

CAMP-FIRE WITH CANDOR

by Scudder Nash

He who keeps his flashlight lit,
Avoids the yawning garbage pit.

Advice from pseudo-experts nettles
Those who Scour pots and kettles.

Kehrlein sagely dissertates
To his camp associates.

The tired feet of womenfolk
Rejuvenate when put to soak.

Youngquist baits the gang with, "Cheese!"
And snaps their physiognomies.

After sherbet, snow and jelly,
Coffee will defrost your belly

Ned's agonized soliloquy
Is "Four more days and I'll be free!"

Complete ablutions, in the nude,
Are best performed in solitude

The weary sit there contemplating,
Keeping others outside, waiting.

MORE CANDOR
BY SCUDDER

Placards, neatly lettered "MEN",
Artistic work of Friedrichsen.

Lengthy campfire programs tend
To paralyze you in the end.

Base Camp epicures' cuisine,
Grub concocted a la Dean.

To step behind a dozing mule,
Violates a safety rule!

The hardy and the resolute,
Take the sporting Evans' route

Snow-glissading on your back,
Chills the sacro-illiac.

Adventure tales of Newton Bell,
Astound the pop-eyed personnel.

Burping campers .. empty-plated,
Gastronomically sated!

B-C ing you again next year!
So long! (The candid mountaineer).

EVOLUTION OF HIKER

Hi-ho, hi-ho, it's down the creek we go
We're grandmas three and have weak tea,
Hi-ho, hi-ho, hi-ho!

Hi-ho, hi-ho, we are the old grandmas
That love to pause - well, just because!
Hi-ho, hi-ho, hi-ho!

Hi-ho, hi-ho, It's off with Cliff we go.
We'd go some more but our feet get sore.
Hi-ho, hi-ho, hi-ho!

Hi-ho, hi-ho, it's up the hill we go -
We're MA's now and drink canned cow.
Hi-ho, hi-ho, hi-ho!

Hi-ho, hi-ho, it's on and up to snow,
We slip and slide and loose our hide.
Hi-ho, hi-ho, hi-ho!

Hi-hi, hi-ho, we are the brave MA's
Whom climbs don't phase yet get no place.
Hi-ho, hi-ho, hi-ho!

Hi-ho, hi-ho, it's after Bill we go.
We're PHD's - do just as we please.
Hi-ho, hi-ho, hi-ho!

Hi-ho, hi-ho, now we're PHD's
We bend our knees like chimpanzees.
Hi-ho, hi-ho, hi-ho!

Hi-ho, hi-ho, we are the PHD's
Who leap up screes and vault pine trees.
Hi-ho, hi-ho, hi-ho!

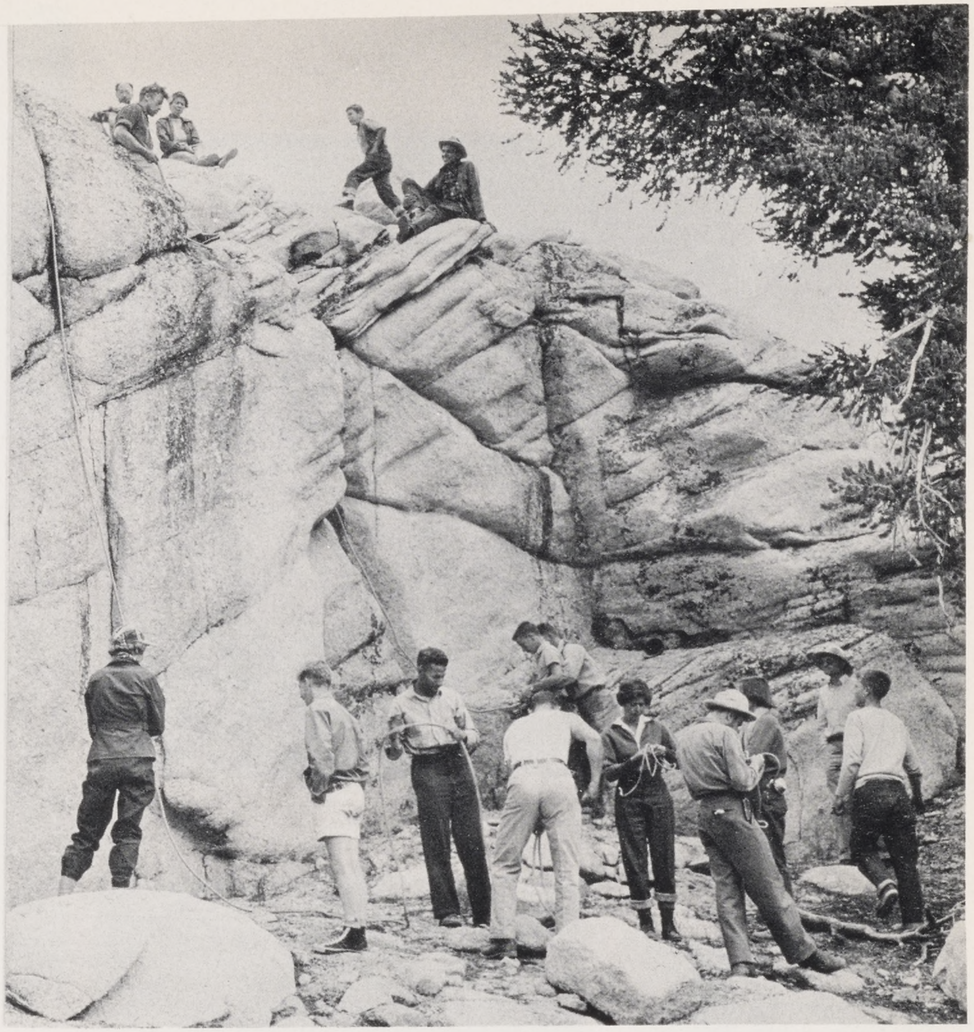
Hi-ho, hi-ho, for feathers we will go.
So we walk like ducks and act like clucks.
Hi-ho, hi-ho, hi-ho!

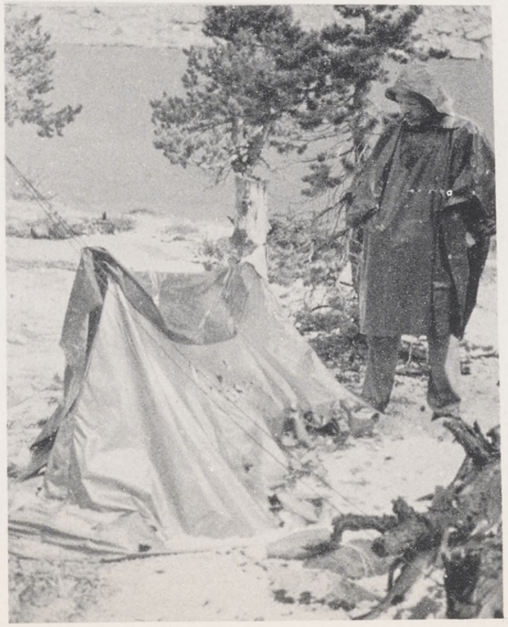
THE LONG, LONG, LONG T(R)AIL

Did your tail hang low? Did it wobble to and fro?
Did you think your lungs would bust as you swallowed up the dust?
Were your legs tied up in knots as you dragged them o'er the rocks?
Did your tail hang low?

Did your tongue hang out? Were you filled with fear and doubt?
Had they moved the camp that day just another mile away?
Would Uncle Clifford let you rest if you fell upon your chest?
Did your tongue hang out?

Could it have been worse upon a horse??





BASE CAMP HISTORY

Nineteen hundred and forty-seven
The Palisades were just like Heaven!
The Palisades were just like Heaven!
For all of us at Base Camp.

(Chorus)

Patsy-ory-ory-ay,
Patsy-ory-ory-ay,
Patsy-ory-ory-ay,
Hiking in the mountains.

Nineteen hundred and forty-eight
We camped beneath the East Vidette.
We camped beneath the East Vidette -
It was a job to get there!

(Chorus)

Nineteen hundred and forty-nine
Mitre Basin sure was fine.
Mitre Basin sure was fine
For all of us at Base Camp.

(Chorus)

Nineteen hundred and fifty
Dingleberry looked good to me.
Dingleberry looked good to me
So I went to Base Camp.

Nineteen hundred and fifty-one
Lake Ediza was lots of fun!
Lake Ediza was lots of fun
For all of us at Base Camp.

(Chorus)

Nineteen hundred and fifty-two
Evolution meant lots to do.
Evolution meant lots to do
For all of us at Base Camp.

(Chorus)

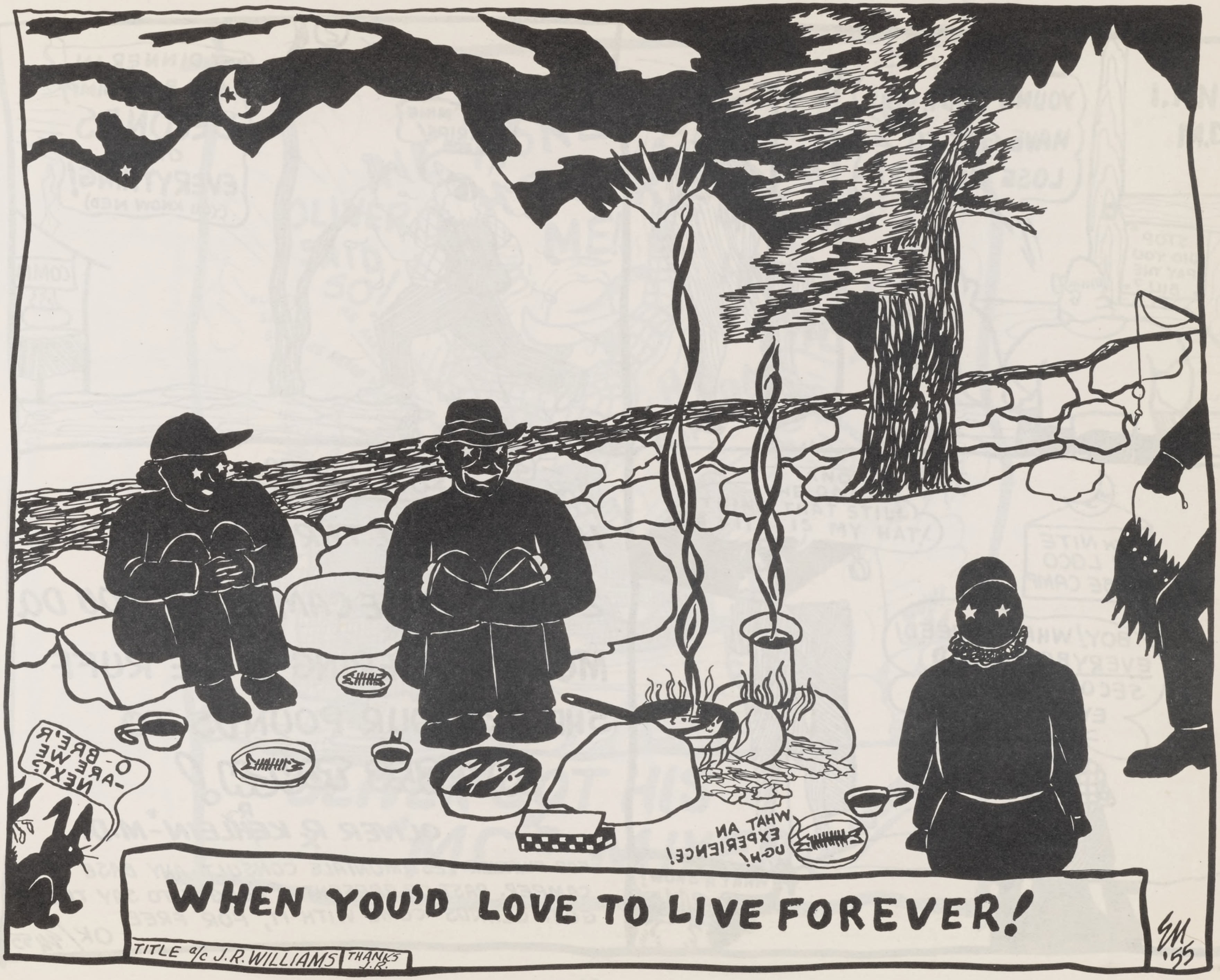
Nineteen hundred and fifty-three
In Second Recess I skinned my knee.
In Second Recess I skinned my knee
But it was swell at Base Camp.

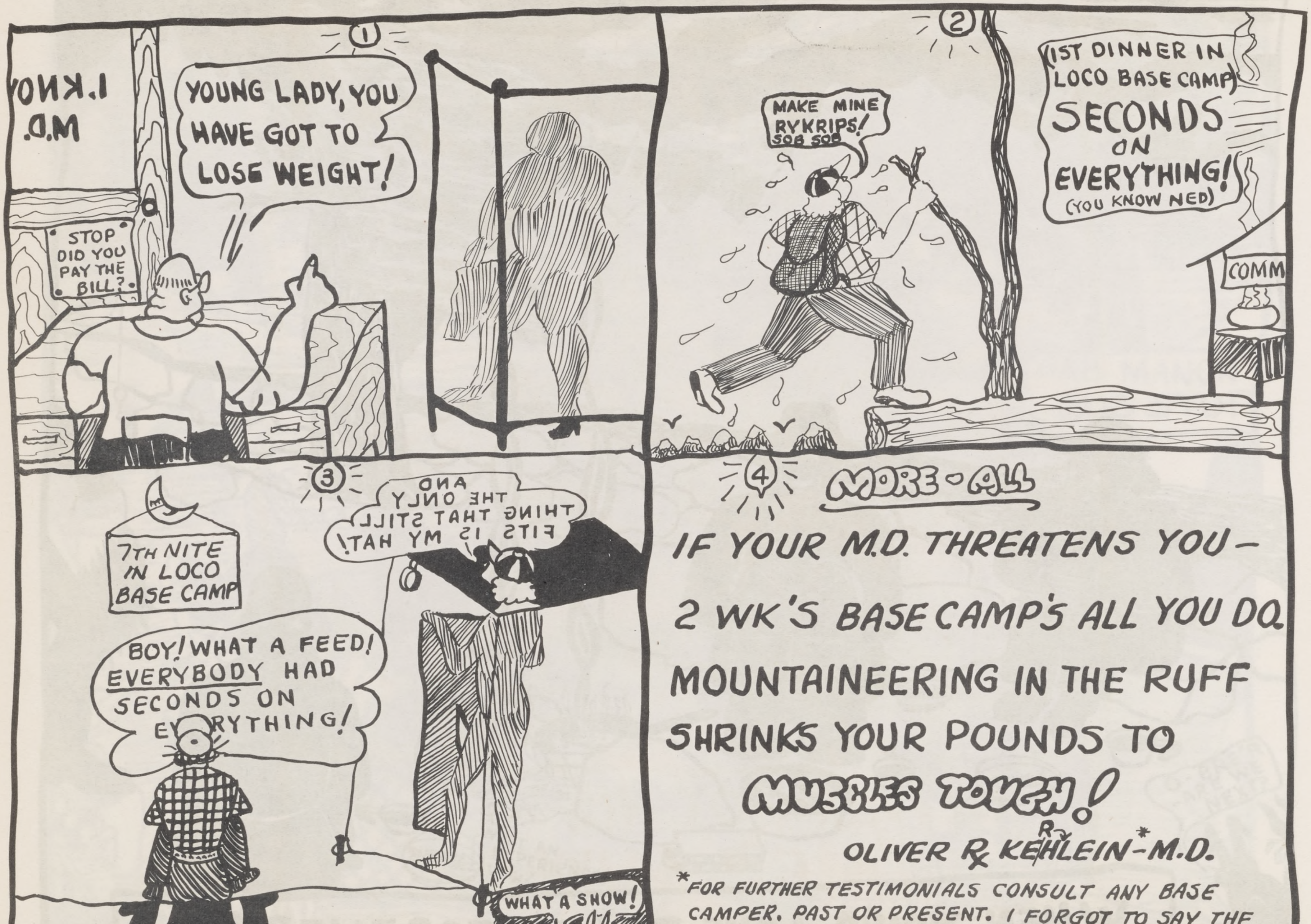
(Chorus)

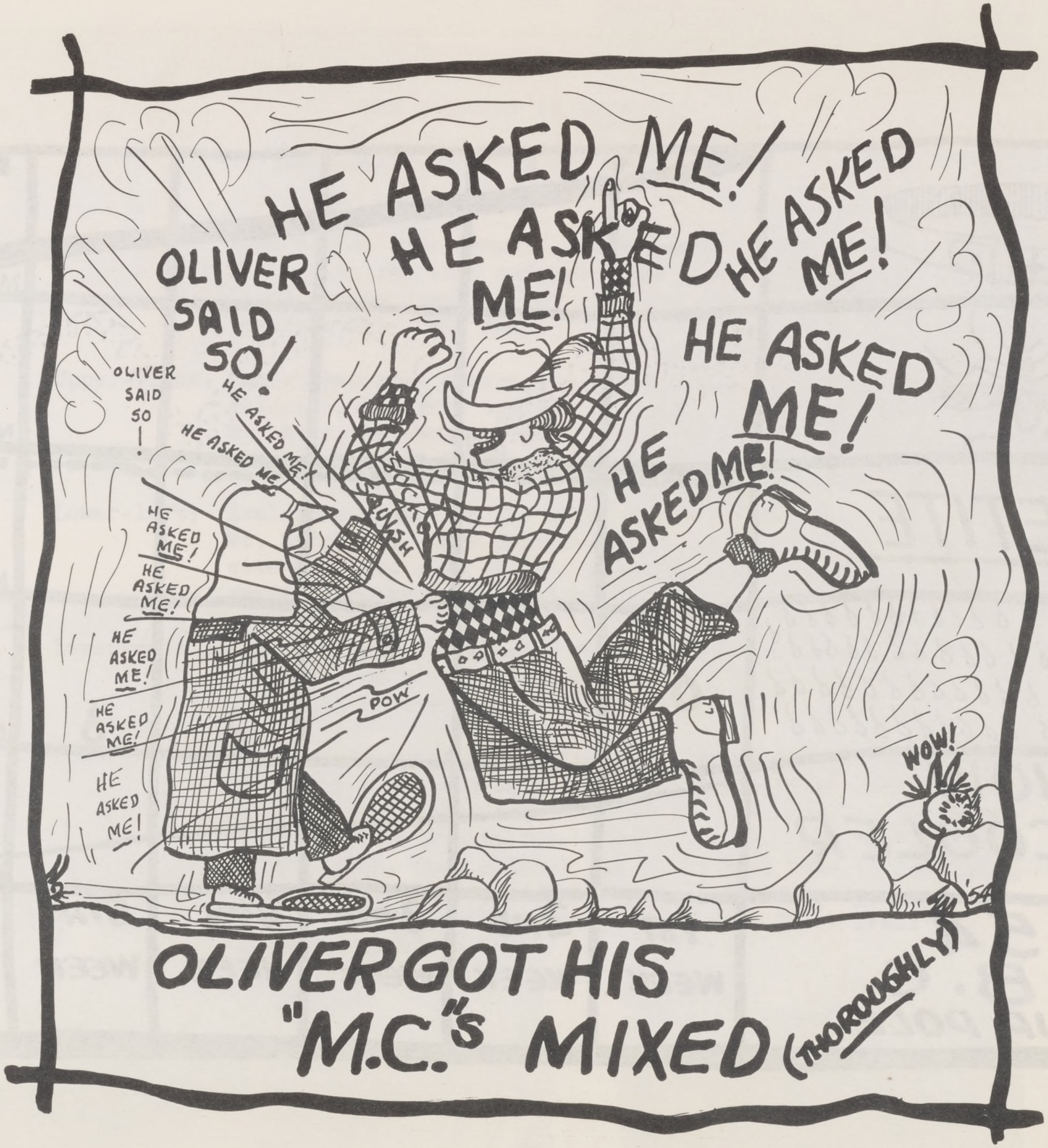
Nineteen hundred and fifty-four
We learned a lot of Bear Creek lore.
We learned a lot of Bear Creek lore
Way up there a Base Camp.

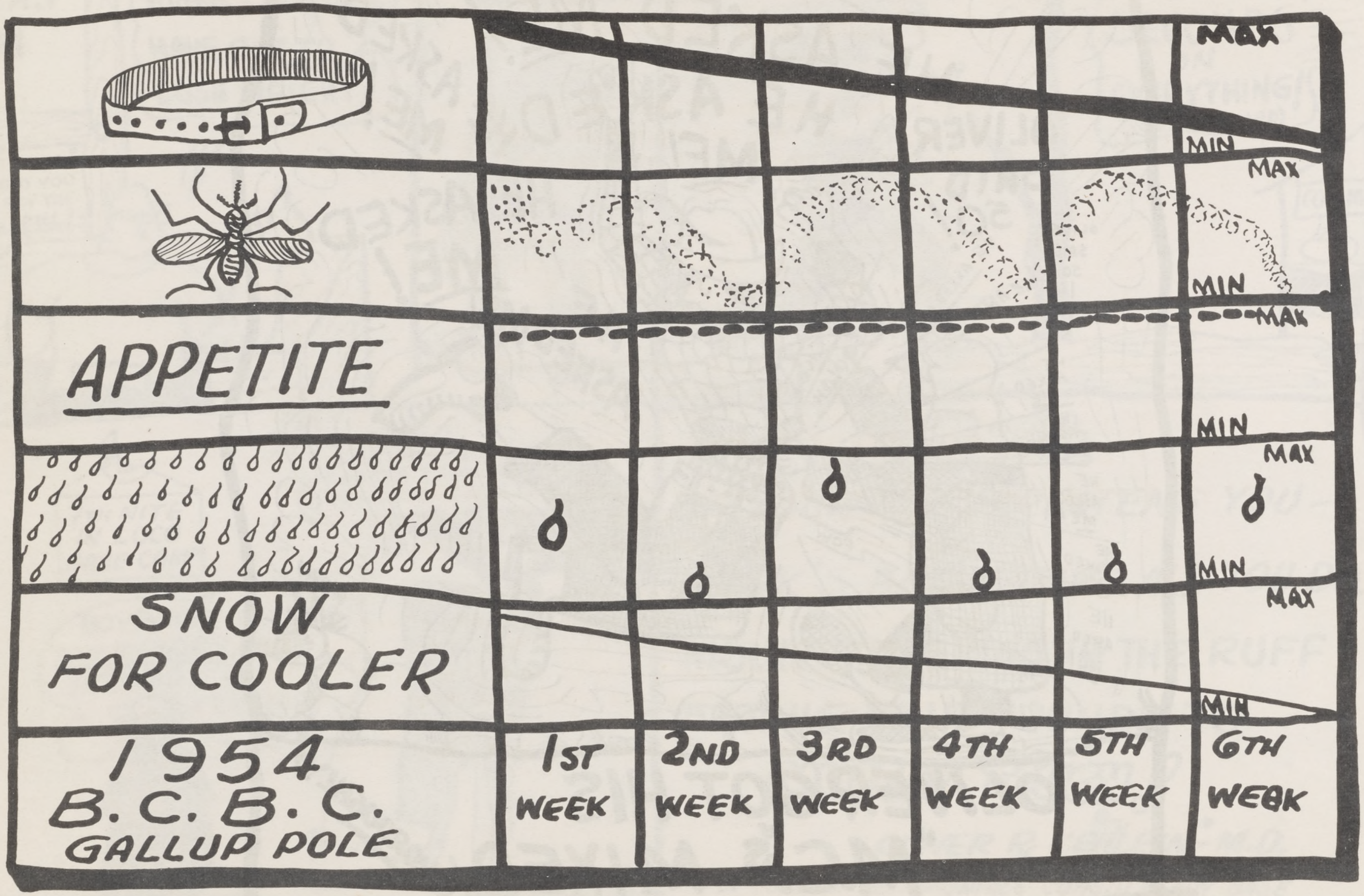
(Chorus)

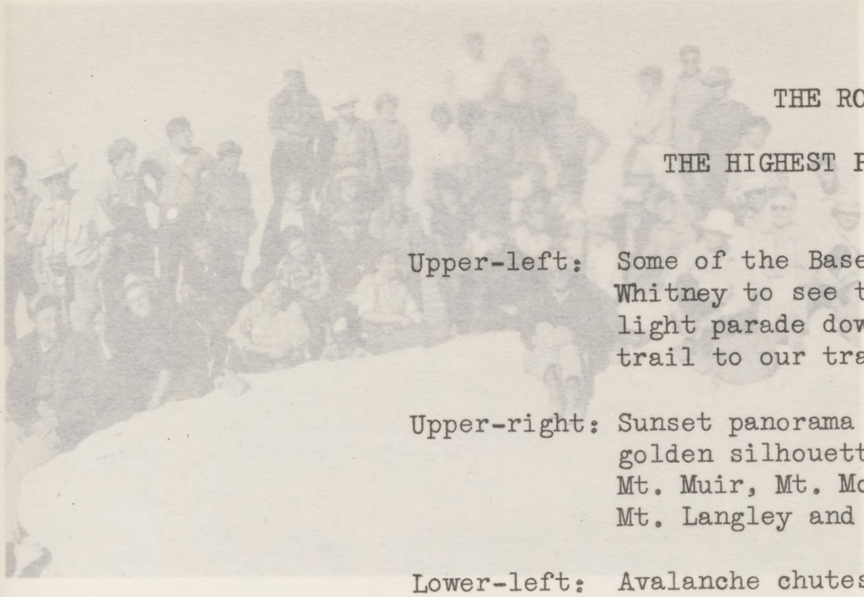
GAB MANOR
BUS STOP

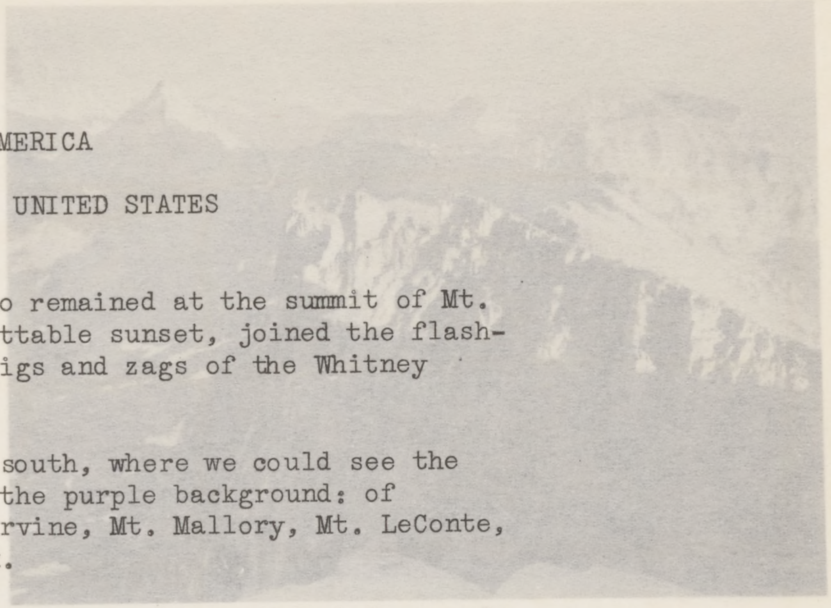

O-BRE'R -ARE WE- NEXT?
WHAT AN EXPERIENCE! UG-H!
WHEN YOU'D LOVE TO LIVE FOREVER!
TITLE c/o J.R. WILLIAMS
THANKS J.R.
EM '55

1
I. KNO M.D.
YOUNG LADY, YOU HAVE GOT TO LOSE WEIGHT!
STOP DID YOU PAY THE BILL?
2
MAKE MINE RYKRIPS! SOB SOB
1ST DINNER IN LOCO BASE CAMP SECONDS ON EVERYTHING! (YOU KNOW NED)
COMM
3
7TH NITE IN LOCO BASE CAMP
AND THE ONLY THING THAT STILL FITS IS MY HAT!
BOY! WHAT A FEED! EVERYBODY HAD SECONDS ON EVERYTHING!
WHAT A SHOW!
4
MORE - ALL
IF YOUR M.D. THREATENS YOU -
2 WK'S BASE CAMP'S ALL YOU DO.
MOUNTAINEERING IN THE RUFF
SHRINKS YOUR POUNDS TO
MUSCLES TOUGH!
OLIVER R KEHLEIN*-M.D.
*FOR FURTHER TESTIMONIALS CONSULT ANY BASE CAMPER, PAST OR PRESENT. I FORGOT TO SAY THE GOAT GLANDS COME WITH IT, FOR FREE.
OK/EW 55


HE ASKED ME!
HE ASKED ME!
HE ASKED ME!
OLIVER SAID SO!
HE ASKED ME!
HE ASKED ME!
OLIVER SAID SO!
HE ASKED ME!
HE ASKED ME!
HE ASKED ME!
HE ASKED ME!
HE ASKED ME!
HE ASKED ME!
HE ASKED ME!
SOCK
CRUNCH
POW
WOW!
OLIVER GOT HIS "M.C."s MIXED (THOROUGHLY)


MAX
MIN
MAX
MIN
APPETITE
MAX
MIN
MAX
MIN
SNOW
FOR COOLER
MAX
MIN
1954
B.C.B.C.
GALLUP POLE
1ST WEEK
2ND WEEK
3RD WEEK
4TH WEEK
5TH WEEK
6TH WEEK





THE ROOF-TOP OF AMERICA

THE HIGHEST POINT IN THE UNITED STATES

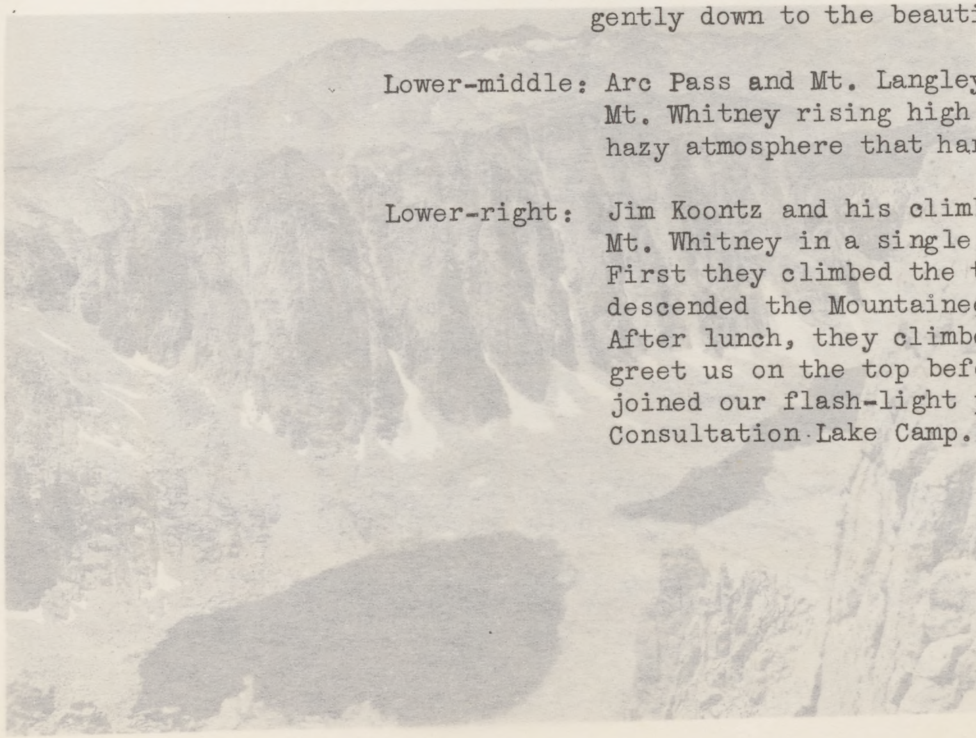
Upper-left: Some of the Base Campers who remained at the summit of Mt. Whitney to see that unforgettable sunset, joined the flash-light parade down the 108 zigs and zags of the Whitney trail to our trail camp.

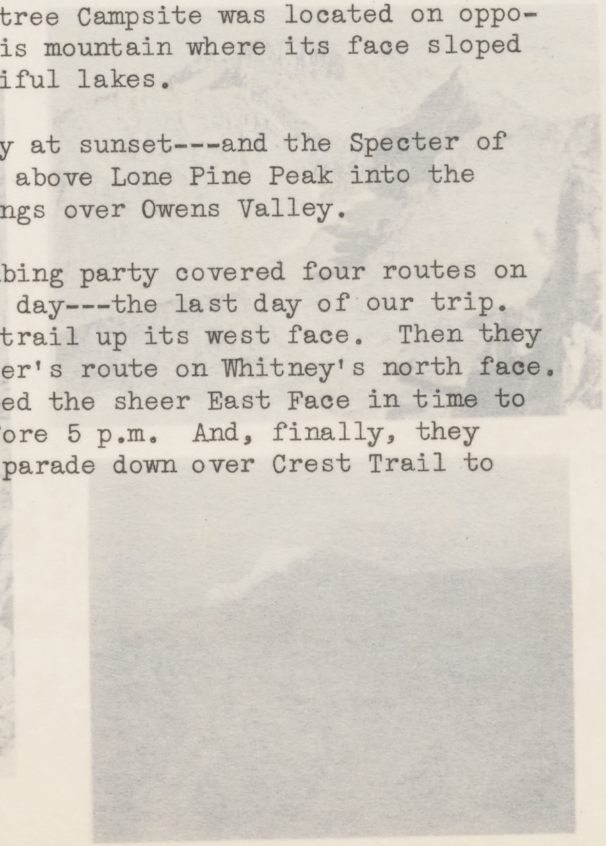
Upper-right: Sunset panorama toward the south, where we could see the golden silhouettes against the purple background: of Mt. Muir, Mt. McAdie, Mt. Irvine, Mt. Mallory, Mt. LeConte, Mt. Langley and Cirque Peak.

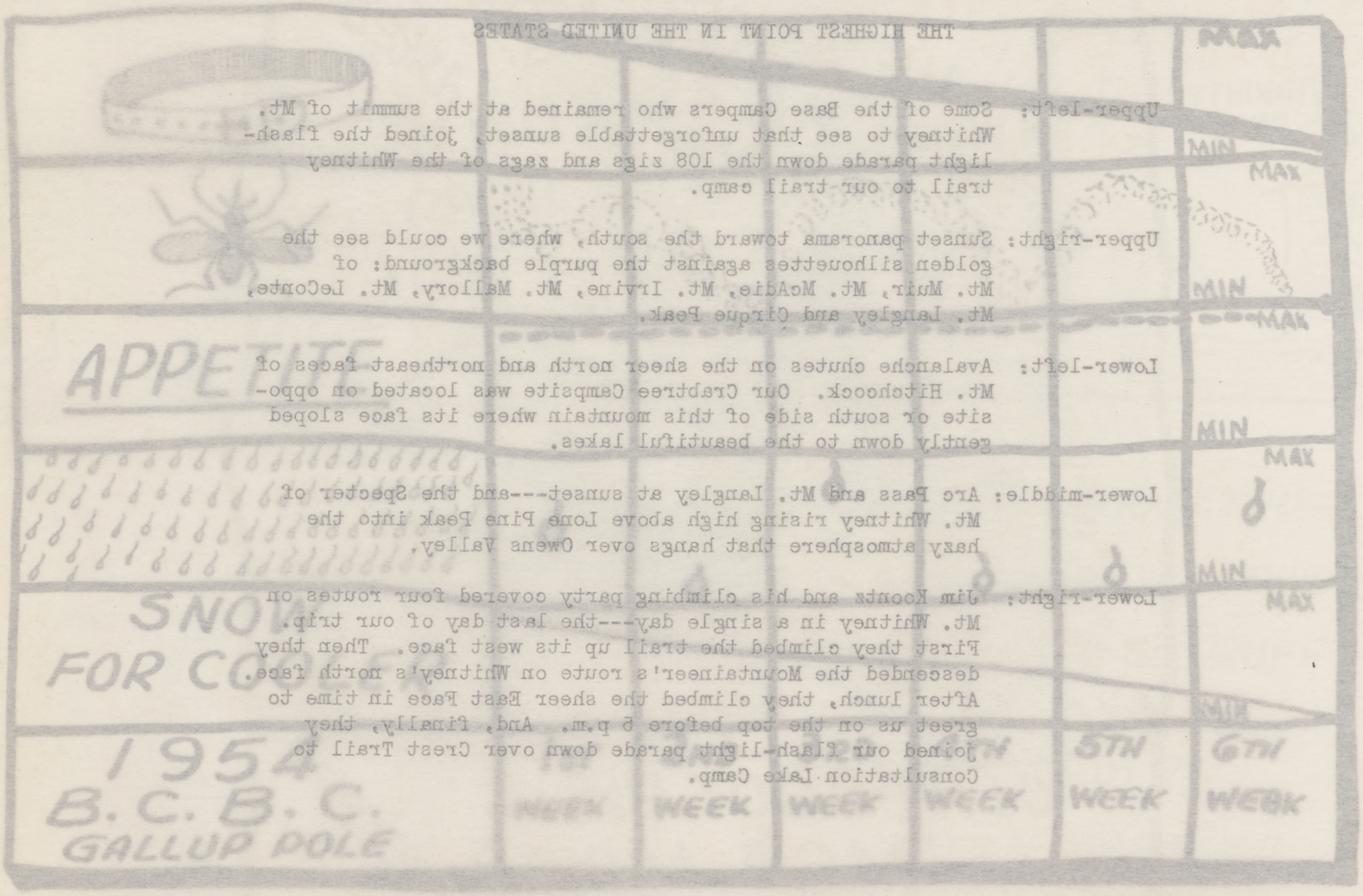
Lower-left: Avalanche chutes on the sheer north and northeast faces of Mt. Hitchcock. Our Crabtree Campsite was located on opposite or south side of this mountain where its face sloped gently down to the beautiful lakes.

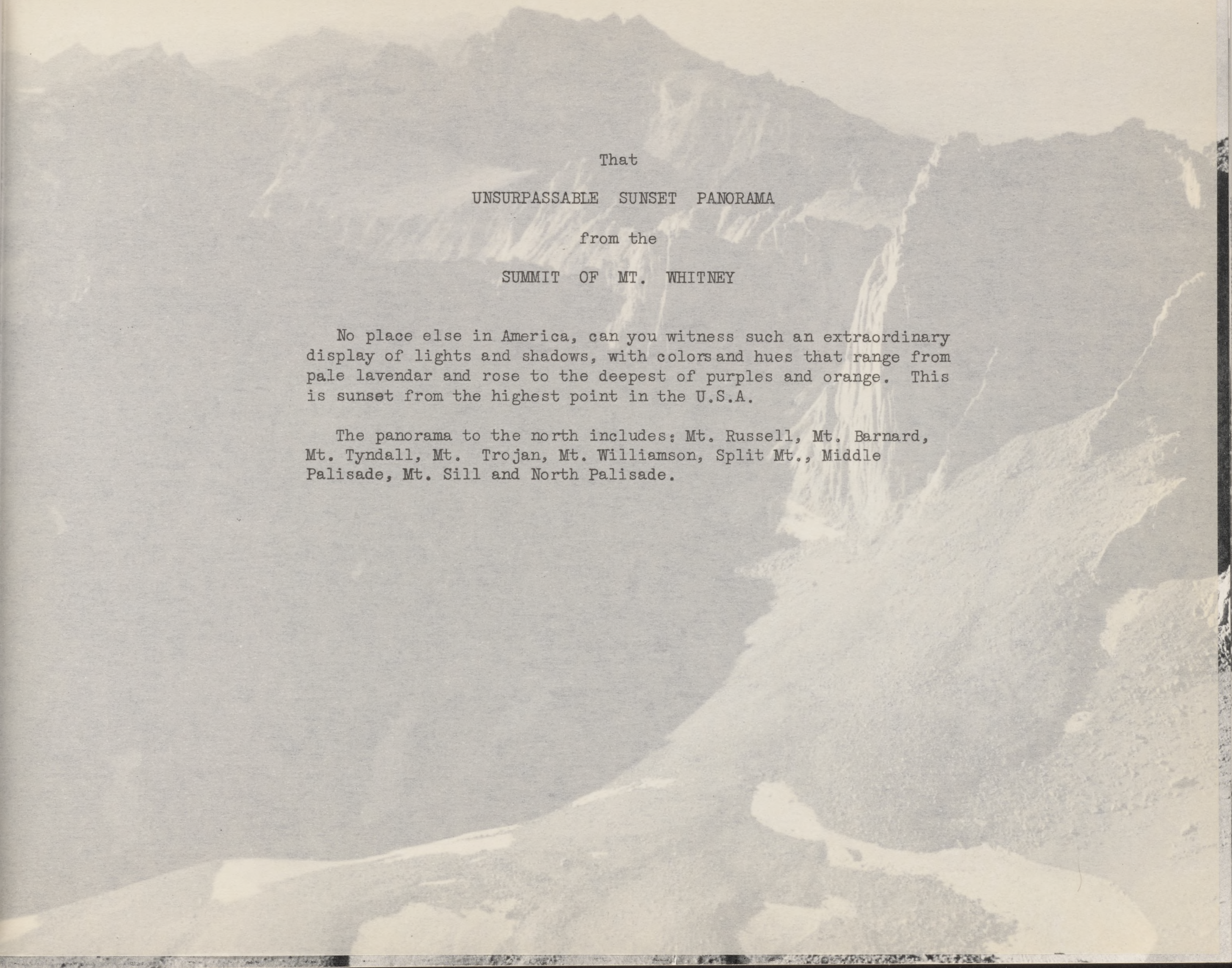
Lower-middle: Arc Pass and Mt. Langley at sunset---and the Specter of Mt. Whitney rising high above Lone Pine Peak into the hazy atmosphere that hangs over Owens Valley.

Lower-right: Jim Koontz and his climbing party covered four routes on Mt. Whitney in a single day---the last day of our trip. First they climbed the trail up its west face. Then they descended the Mountaineer's route on Whitney's north face. After lunch, they climbed the sheer East Face in time to greet us on the top before 5 p.m. And, finally, they joined our flash-light parade down over Crest Trail to Consultation Lake Camp.






MAX
MIN
MAX
MIN
MAX
MIN
MAX
MIN
MAX
MIN
APPETITE
SNOW
FOR COOKS
1954
B.C.B.C.
GALLUP POLE
WEEK
WEEK
WEEK
WEEK
5TH WEEK
6TH WEEK



That UNSURPASSABLE SUNSET PANORAMA from the SUMMIT OF MT. WHITNEY

No place else in America, can you witness such an extraordinary display of lights and shadows, with colors and hues that range from pale lavendar and rose to the deepest of purples and orange. This is sunset from the highest point in the U.S.A.

The panorama to the north includes: Mt. Russell, Mt. Barnard, Mt. Tyndall, Mt. Trojan, Mt. Williamson, Split Mt., Middle Palisade, Mt. Sill and North Palisade.

MOUNTAINEERING NOTES

by
James Koontz and Hervey Voge

Limited space in this year's Base Camp Book makes it necessary to omit descriptions of every climb. Only those climbs are described which were first ascents or new routes, except in the case of some of those that were made in Oregon, as that country is new to most Sierra Club members.

We received a lot of help and advice from members of both the Mazamas and Obsidians, two of Oregon's most outstanding mountaineering clubs.

One of the distinguishing things about mountains in Oregon is the extreme rottenness of the rock. Very seldom is any solid rock found. Most of it falls into one or the other of two general types: the unstable kind that resembles adobe and is so soft that it may be chopped into with an ice axe; the solidified moraine type, like the adobe except that larger hard rocks are loosely embedded in it.

There was very little glare ice in Oregon this year and the snow pits were much shallower than in the Sierra, when present at all.

The crevasses were sometimes quite wide and there were numerous ice falls.

The following is a list of the mountains climbed by Base Campers in all three regions: PK. 12,751, Mt. Julius Caesar, PK. 13,100 + Mt. Hilgard, PK. 12,200 + 1½ miles S.W. of Lake Italy, Seven Gables, the North Peak of Seven Gables, PK. 11,514 , Mt. Hooper, PK. 12,000, Mt. Senger.

-.- -.- -.-

From the Crabtree Base Camp, the following peaks were climbed:

PK. 13,777, Mt. McAdie, Mt. Tyndal, Diamond Mesa, Mt. Russell, Mt. Williamson, East PK. of Williamson, PK. 12,393 -one mile west of Barnard, Mt. Barnard, Mt. Guyot, Mt. Langley, Mt. Muir, Mt. Hitchcock and Mt. Whitney.

-.- -.- -.-

From the Three Sisters Base Camp, the following were climbed:

The Bachelor, North Sister, Middle Sister, South Sister and Broken Top.

SOME BEAR CREEK CLIMBS

Pk. Julius Caesar, 13,196 ft. Class 2, from col south of peak and on trail from Lake Italy to Granite Basin. Ascend diagonally from col to summit over talus blocks and slabs. Ascent July 7, 1954: Oliver Kehrlein, Helen Kemnitzer, John P. O'Neill, Sue Murphy, Paul Wadsworth. Another party included point 12,546 on adjacent ridge (to west) on their ascent which included Wm. Evans, George Becker and Peter Raven.

Mt. Hilgard, 13,351 ft. Ascent via meadow below Hilgard Branch Lakes and up south side. Class 2. Descent directly down west side to Bear Creek Base Camp, Class 3. Ascent made July 8, 1954: Glen Dawson, Keith Dawson, Lillie Stanley, Walter Heninger.

Infant Buttes, 11,429 ft. From Bear Creek Base Camp via Cub Lake to Infant Buttes to view remarkable lake with no visible outlet. Class 2. Ascent July 14, 1954: George Becker, Janice Becker, Glen Dawson and Keith Dawson.

Mt. Hooper, 12,322 ft. From Selden Pass up north face of east buttress, from east to west. Class 2. Descent south face of same buttress, west to east to col. Ascent July 14, 1954: Wm. Evans, Roger Popper, Dan Popper, Catherine Popper, Dan Belmont, Judy Rowe, Margaret Sosnowski, Helen Kemnitzer, Aileen Whitney, Al Whitney.

Mt. Hooper, July 16, 1954: Climbed from Rose Lake by Michael Loughman and Wayne Harshbarger. Left camp 6:00 a.m. Arrived summit 9:30 a.m. Route up benches to ridge to left of east notch. After long traverse on north side of ridge, necessitated by gendarmes, gained ridge and continued to summit. Difficulty: Max. 2. Descent same as previous party.

Seven Gables, 13,095 ft. Was climbed several times by members of Base Camp, all via the couloir on the east face. On an early climb, led by O. Kehrlein, this couloir was filled with snow. From the upper end of the couloir, transfer to the north ridge to the summit, keeping on the west face. Later in the season, with less snow, Bill Evans and party left the chute before reaching its upper end and attached the north ridge via chimney on its east face to join the previous route. Two parties descended by the long, easy west slopes to the south fork of Hilgard Creek.

FIRST ASCENTS AND/OR NEW ROUTES

Pk. 12,751 - N.W. of Mt. Hilgard: Class 2 from Hilgard Fork of Bear Creek. Walk up to the big lake northwest of Mt. Hilgard and then climb diagonally upward across the west face to the highest point. Ascent July 6, 1954: Jim Koontz, Peter Raven, Roger Popper, Dan Popper, Don Bull George Becker, Mike Loughman, Ken Kahn, a second ascent and new route.

Pk. 13,100+ - ½ Mile South of Bear Creek Spire Traverse: Class 4, ascent via west face, Class 3, descent via west arête. Approach: from the base of Lake Italy circle the lake on the north shore and ascend to the lake in the cirque south of Bear Creek Spire. Start diagonalling upward across the face of the north arête toward the summit. After passing below the low point of the north arête, reverse direction and climb northward to the summit plateau, and thence to the top.

The descent was made by following the talus back (north) a hundred or so feet from the summit. Then drop down some easy rock to a ledge that crosses the west face two or three hundred feet below the summit. Follow the ledge south to the west arête. Then follow the arête west to an easy chute that leads back into the cirque. Ascent July 8, 1954: Jim Koontz, Mike Loughman, Roger Popper, Dan Popper. No cairn or other evidence of prior ascent was found.

Pk. 12,000 - West of Selden Pass: Class 2-3 from Selden Pass. Swing southwest from Selden Pass around the east shoulder of the mountain and climb gradually up over easy rock to the summit plateau. Cross the plateau west to a knife edge and follow this to the summit. En route, three minor summits were climbed. Descent was via the south couloirs to the pass between this mountain and Mt. Hooper, then to Marie Lake. Ascent July 15, 1954: Oliver Kehrlein and Jim Koontz.

CLIMBS FROM CRABTREE BASE CAMP

Mt. McAdie Class minimum 4 via the rock rib north of the west couloir. Approach: from Crabtree Creek ascend the valley and climb to the top of Cuthbertson's Pass (Mitre Pass). From the pass climb directly up the rock north of the west couloir to the north and highest summit.

A Class 3 route may be followed from the summit down to the col between this peak and the next to the south, thence down the Class 2 west couloir. Ascent July 22, 1954: Rope 1, Hervey Voge, Norv LaVene, Clare Millikan; Rope 2, Jim Koontz, Mike Loughman, Rose Marie Lenel, Bent Graust; a new route.

Mt. Barnard (North Face) Class 3. From below last lake of Upper Wright Lakes, climb ledges to left of avalanche chutes in the amphitheater. Work back and forth from ledge to ledge until the shoulder of Barnard is reached. Follow this, veering south, to summit. A new route. Oliver Kehrlein and party.

Pk. 12,393 (1.5 W. of Mt. Barnard) Class 2. Climbed by O. Kehrlein and party via north face enroute to Mt. Barnard. From saddle, traverse along crest keeping to south side. Two previous ascents, but a new route.

Mt. Langley (14,042 ft.) An ascent by way of the northwest face was made July 29, 1954. As far as we know this route had not been used before. Class 3. Group consisted of Hervey Voge, Bent Graust, Don Carder, Dick Clow, Ro Lenel, George Baldwin, Joe McFarland and George Millikan. Starting from Base Camp on the lowest large lake on Crabtree Creek, we went to the head of the creek and crossed the pass to the south (Cuthbertson's Pass). Then we had to descend to about 11,100 feet on Rock Creek before we could start up the northwest slope of Langley. On this descent we found it most convenient to stay to the left (east) of the lakes of upper Rock Creek. We ascended up the face north of a broad, open chute on Langley, and finally finished the climb of the face up the chute. This led us to the broad, sandy summit plateau, which was easily crossed to the summit. Our route of return was the same. This climb made a long day, since we ascended at least 6,500 vertical feet during the round trip.

Mt. Russell Class 3 via the north face. From the small frozen tarn at the base of the north face, proceed up the east side of the face over easy rock to the first ledge that leads out into the middle of the north face. Follow the ledge to the middle of the face and climb directly up to the summit ridge, coming onto it midway betwen the two peaks.
Ascent July 27, 1954: Norv LaVene, Mike Loughman, Rose Marie Lenel, Bent Graust, Carl Miller and Jim Koontz, - a new route.

OREGON CLIMBS

Mt. Hood Class 4 via Cathedral Ridge. Ascend the snow slopes east of the ridge to the point where they become so steep that travel along the ridge would be easier. At this point, transfer to the ridge and continue along it to the first gendarme. Here two routes present themselves.

On the ascent we climbed the gendarme via a Class 4 chimney. Or it may be passed on the right (west) side over loose Class 2 rock. This was our route on the descent. After passing the first gendarme, walk to the second, where again there are two routes.

The ascent was made by traversing right and then up over steep loose rock. Class 3-4. The descent was made by a couloir on the west and then traversing east out of it just before it ends in a drop-off. This is a very loose couloir with the possibility of avalanches. Class 3. After passing the second gendarme, the rock ends at the base of a 150 ft. high angle ice slope with a little patch of rather loose rock at the top. After passing this pitch walk to the summit over a snow slope that grows less steep toward the summit.
Ascent August 6, 1954: Gene Sebring, Jim Koontz, Keith Newson, Mendel Johnson, Catherine Dunlop, Pat Stahl, Tom Bricker.

This was an official Obsidian climb. The Obsidians extended great courtesy and hospitality to Oliver and myself while we were at their summer camp at the base of Mt. Hood. It was our first trip into northern mountains and we learned a great deal from them. (J.K.)

South Sister Class 5 from Prouty Glacier except that pitons can't be used as the rock is too adobe-like to hold them.

Approach: From Green Lake walk up the trail to the saddle between South Sister and Broken Top (30 minutes). At this point swing well to the west and climb to and up the most prominent gully between morainal ridges leading to the base of the Prouty Glacier ($1-1\frac{1}{2}$ hours). Ascend directly to the bergschrund ($1-1\frac{1}{2}$ hours).

The rock on the right (northwest) side of the bergschrund appeared safest. It was very soft and crumbly and at the same time steep. Fortunately it was soft enough so that shallow footholds could be cut in it. Otherwise it would have been impassable. This is a rather dangerous place as rocks were falling continuously ($1-1\frac{1}{2}$ hours). After crossing the bergschrund, proceed up the snow, climbing continuously to the next patch of rock (1 hour). Cross this ($\frac{1}{2}$ hour). Climb to the summit ridge west of the saddle between the South Sister and its subsidiary eastern peak and proceed along the snow north of and below the ridge to the summit (1-2 hours).

Descent via the southeast slopes to Green Lake takes $1\frac{1}{2}$-2 hours. Total time - 8 hours. Ascent August 12, 1954: Jim Koontz and Don Williams.

North Sister Class 3 from the west via the south ridge. From Scott Camp walk east to the saddle between North Sister and Middle Sister staying south of Collier Glacier. Proceed up the ridge to the arête leading to the summit which is northwest from the junction of the ridge and arête.

Here there are two routes: the arête may be followed on either the northeast side or the northeast involves an easy knife-edge. Both routes end in a high angle snow slope on the southwest side of the summit pinnacle. After crossing the snow slope follow the trail to the base of a wide angle couloir. The upper part of this involves a short Class 3 pitch, and brings you out a short walk from the summit.

The descent was made via the same route except that from the saddle between the two Sisters, we glissaded down the eastern slopes.

Ascent August 14, 1954: Ray Sims (leader), Louis Jukich, Stanley Adam, Jean Pierre Imhof, Berny Thorsch, Sully Cooper, Rita Canessa, Anne Goldstein, Elsa Bailey, Al Schmitz, Jim Koontz.

Ray Sims, an Obsidian who has climbed the mountain 27 times from every side, came to Base Camp just to lead us up. He was very helpful in teaching us snow-and-ice technique and in showing us the routes up these northern mountains.

Broken Top Class 3 from Green Lake via the west ridge. Virlis Fischer came all the way from Portland to lead a large group of members up this peak under extremely unfavorable weather conditions. The descent was completed in a thick snowstorm.

Ascent August 15, 1954: Virlis Fischer, Carol Wolcott, Kathy Horn, Malcolm Smith, Jim Lewis P. de Cinde, Clarence Wolcott, James H. Hampton, Jim MacBride, Alfred Caldwell, Bob Johnston, Bill Pope, Jerry Cramer, Randy Cramer, Anne Roth, Ben Herr, Frank Corbelli, Sumi Haramaki, Marsha Ann Platt, Robert Platt, Fred Huntres, Betty Huntres.

Mr. Fischer also conducted large groups to the summit of The Bachelor and around Newberry Crater to the summit of Paulina Peak.

All of the members were very appreciative of the wonderful hospitality and expert leadership shown by our northern neighbors-- Virlis Fischer and Martha and Bob Platt of the Mazamas, and Ray Sims of the Obsidians.

Middle Sister Class 5 via the Diller Glacier and East Face.
Approach: From Green Lake walk up the trail to the low saddle between the South Sister and Broken Top (30 min.). Swing west here toward the south shoulder of the Middle Sister and cross the plateau, gradually ascending, and then drop down just east of the pass between the Middle and South Sisters. Climb to the south edge of the Diller Glacier and climb northwest to the bergschrund (3 hours). At this point the climb really begins, using crampons to the bergschrund. During August the bergschrund is likely to prove something of a problem, particularly after the sun has been up awhile and avalanching begins. We reached it at about 9:00 a.m. By that time there was continuous avalanching across it. It is at the bottom of the upper snow funnel and all the rock from above comes down over it.

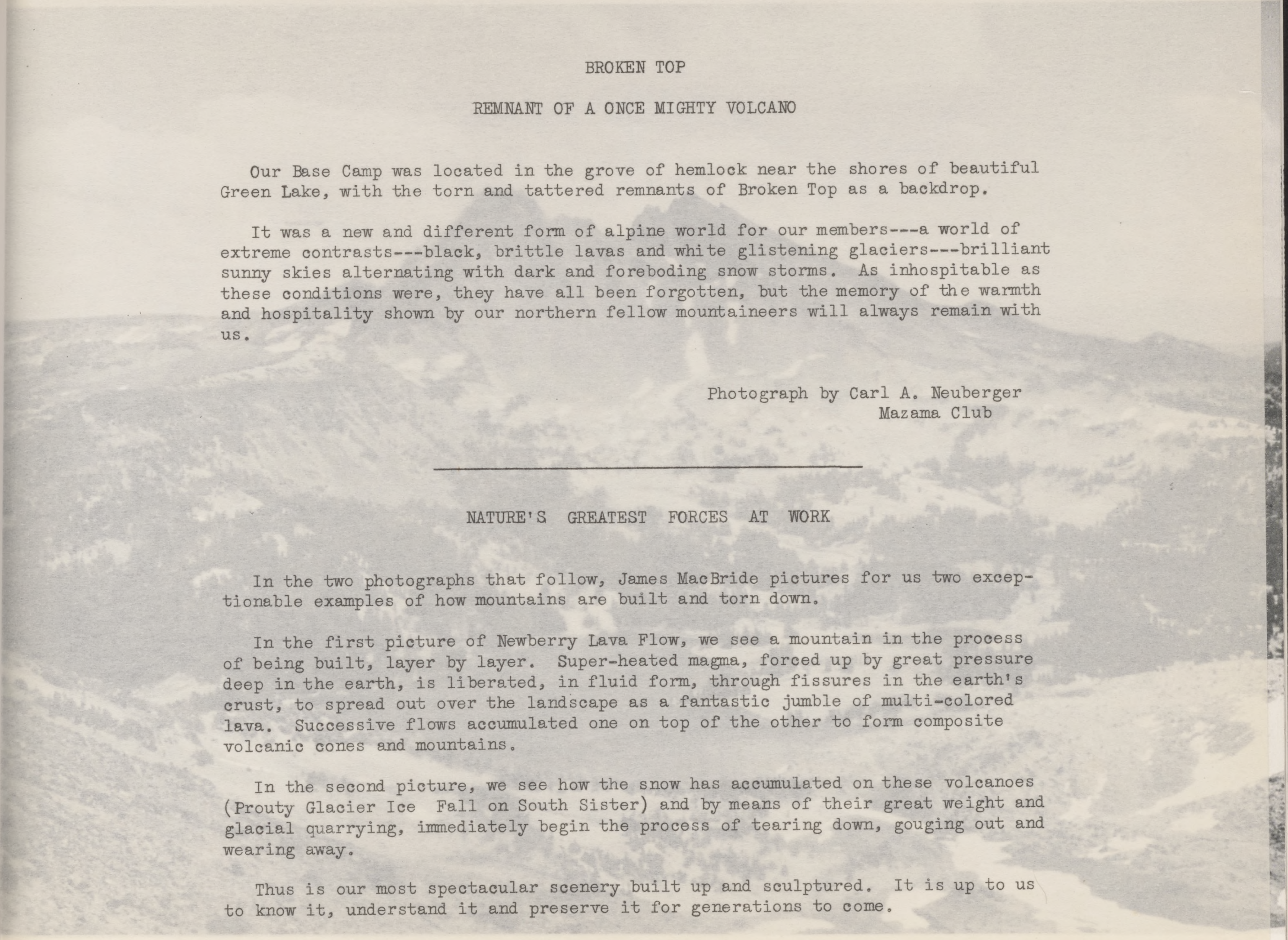
A feasible place to attempt climbing the upper snow wall of the bergschrund is at the end of an avalanche groove. The wall of the cleaver splitting the east face, to our right (north), looked very steep and crumbly. The rock to the left (south) didn't look quite so bad.

During all the time that we stayed in the bergschrund (fortunately the crevasse was filled with snow and debris), we stayed very close to the upper wall so that the falling rock shot over us.

I was not able to climb the rock immediately adjacent to the bergschrund as it was steep and crumbly and avalanches were continuous across the top. I was able to put in a seemingly sound angle piton just above the place where the bergschrund opened up into an unfilled crevasse. After traversing south for about twenty or thirty feet from the piton over very unsound rock, I found that I was under the protection of a large knob of rock about thirty feet up, that shielded me from the avalanches. Fortunately, the climbing here was easier except for one bad spot near the bottom. One horizontal piton was used for direct aid. I climbed up in the lee of the protecting knob of rock and belayed up Jean Pierre who had been belaying me from the bergschrund (2-3 hours). There was considerable rope drag after I put in the second piton. A two-rope technique would be advisable here.

At this point, we proceeded directly up the steep snow funnel using ice-axe belays. As soon as we reached the level of the shallow snowridge that ascends directly to the summit from the central cleaver, we traversed some 90 feet to it and climbed directly up it to the summit (2-3 hours from bergschrund). Once you get past the bergschrund, the climb becomes safe from falling rock, which moves relatively slowly on the snow.

We descended via the south shoulder to a lake east of the saddle. The time from Green Lake to the summit and down to the base just east of the saddle was 10 hours.
Ascent August 17, 1954: Jim Koontz and Jean Pierre Imhof, a new route.



BROKEN TOP

REMNANT OF A ONCE MIGHTY VOLCANO

Our Base Camp was located in the grove of hemlock near the shores of beautiful Green Lake, with the torn and tattered remnants of Broken Top as a backdrop.

It was a new and different form of alpine world for our members---a world of extreme contrasts---black, brittle lavas and white glistening glaciers---brilliant sunny skies alternating with dark and foreboding snow storms. As inhospitable as these conditions were, they have all been forgotten, but the memory of the warmth and hospitality shown by our northern fellow mountaineers will always remain with us.

Photograph by Carl A. Neuberger
Mazama Club

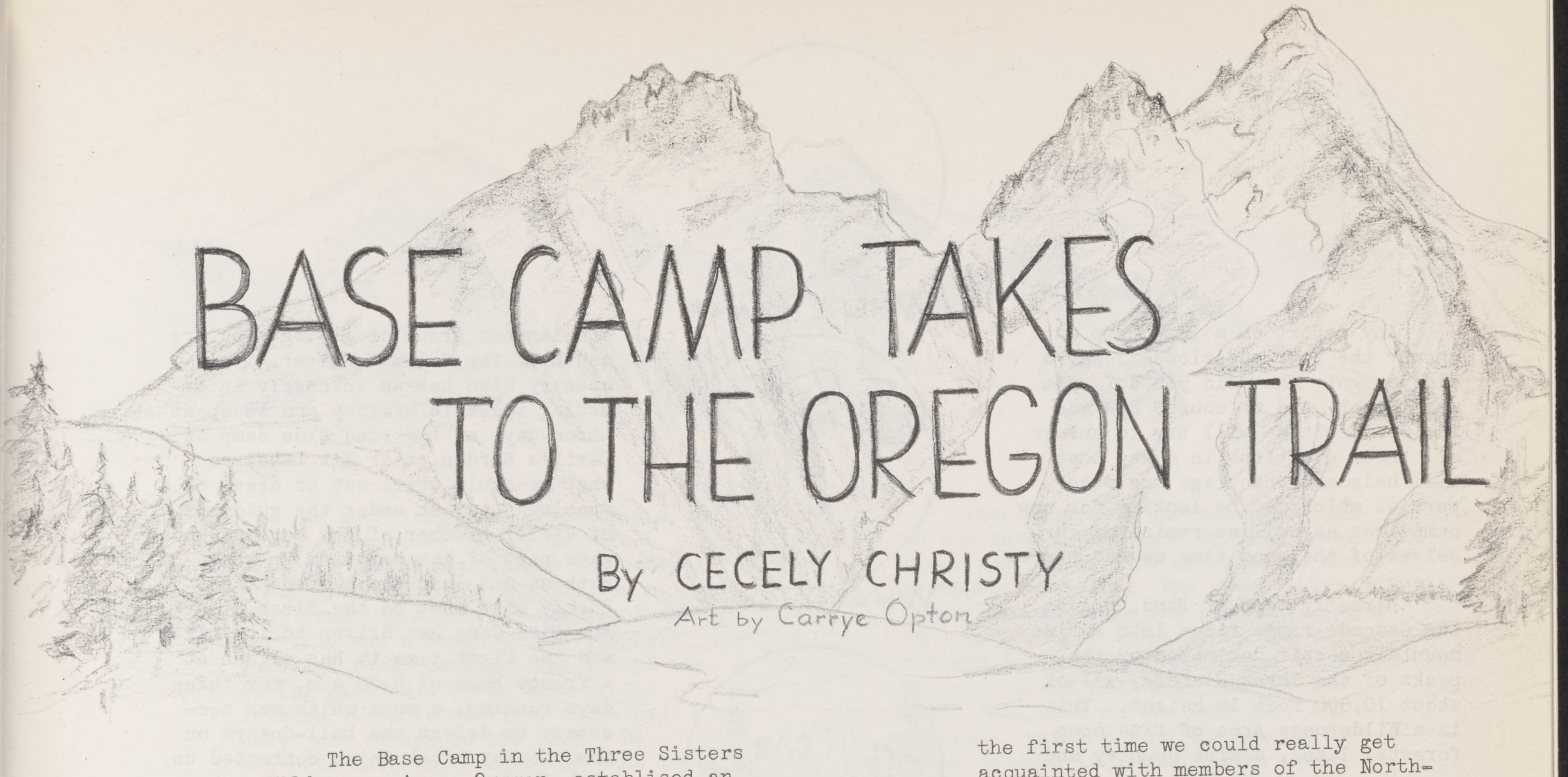
NATURE'S GREATEST FORCES AT WORK

In the two photographs that follow, James MacBride pictures for us two exceptionable examples of how mountains are built and torn down.

In the first picture of Newberry Lava Flow, we see a mountain in the process of being built, layer by layer. Super-heated magma, forced up by great pressure deep in the earth, is liberated, in fluid form, through fissures in the earth's crust, to spread out over the landscape as a fantastic jumble of multi-colored lava. Successive flows accumulated one on top of the other to form composite volcanic cones and mountains.

In the second picture, we see how the snow has accumulated on these volcanoes (Prouty Glacier Ice Fall on South Sister) and by means of their great weight and glacial quarrying, immediately begin the process of tearing down, gouging out and wearing away.

Thus is our most spectacular scenery built up and sculptured. It is up to us to know it, understand it and preserve it for generations to come.



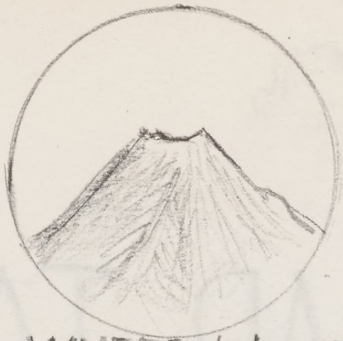
BASE CAMP TAKES TO THE OREGON TRAIL

By CECELY CHRISTY

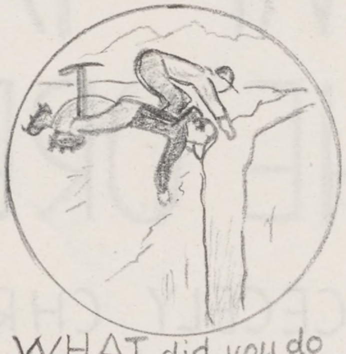
Art by Carrye Opton

The Base Camp in the Three Sisters Wilderness Area, Oregon, establised an all-time record for "first" in Base Camp history. To begin with, this was the first official trip outside California. Almost all our equipment, stoves, tents, kitchenware was new--and how those new pans shone. The Volcanic country around us was a decidedly new type to Californians, and so was the weather.

Last, but most important, it was the first time we could really get acquainted with members of the Northern Clubs. Leaders of the Mazamas, the Obsidians, the Trails Club, the Chemektans, came to our camp to help us and lead climbs for us and told us at campfire about their northern ways and problems. The assistance which our leaders received from the Mazamas, the Obsidians especially was responsible for a large part of the success of the trip.



WHERE did you go

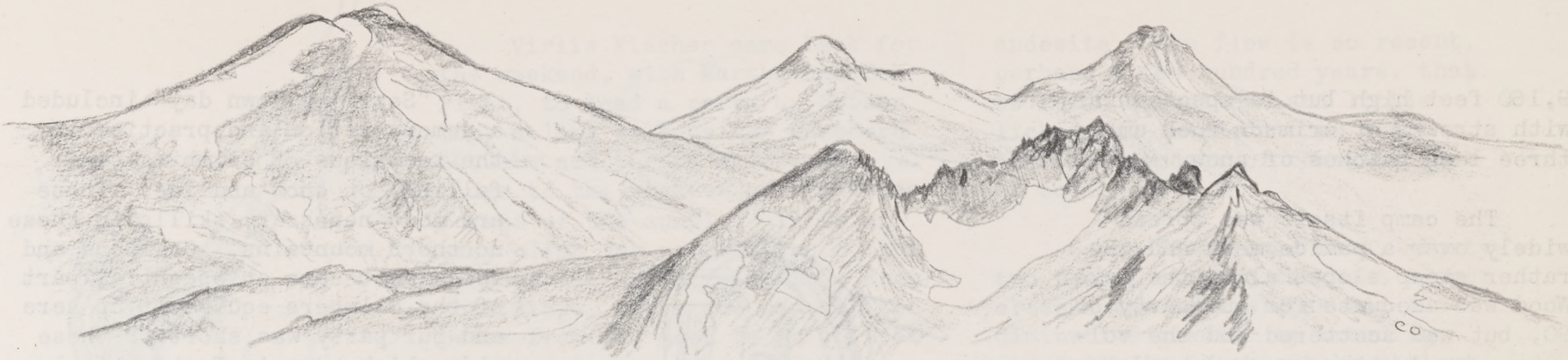


WHAT did you do

WHO was there

Any report on a Base Camp must answer the four questions... Where did you go? What did you do? Who was there? And of course HOW was the weather? We will try to answer all these questions in a way that will help and encourage any other parties which may be looking for new campsites as well as reminding ourselves of the good time we had there.

Directly west of Bend, Oregon, the Cascade range rises into a fine mountain massif dominated by the peaks of the Three Sisters, all of about 10,000 feet in height. This is a Wilderness Area of fine open forests, lakes, alpine country and the largest group of living glaciers south of the Columbia River. This country also has an intensely interesting volcanic history and we spent three days at the road side camp of Devil's Garden, near Elk Lake, so that we could drive out to areas of special interest under the guidance of Virlis Fischer of the Mazamas who gave part of his vacation to stay with us and lead these auto-hikes. Surely this must be the first time the Base Camp has driven to its hikes and the first time it has arisen at a frosty hour of 5:30 a.m. for three days running, a move which was necessary to defeat the bull-dozers on the one way track which connected us with Bend.

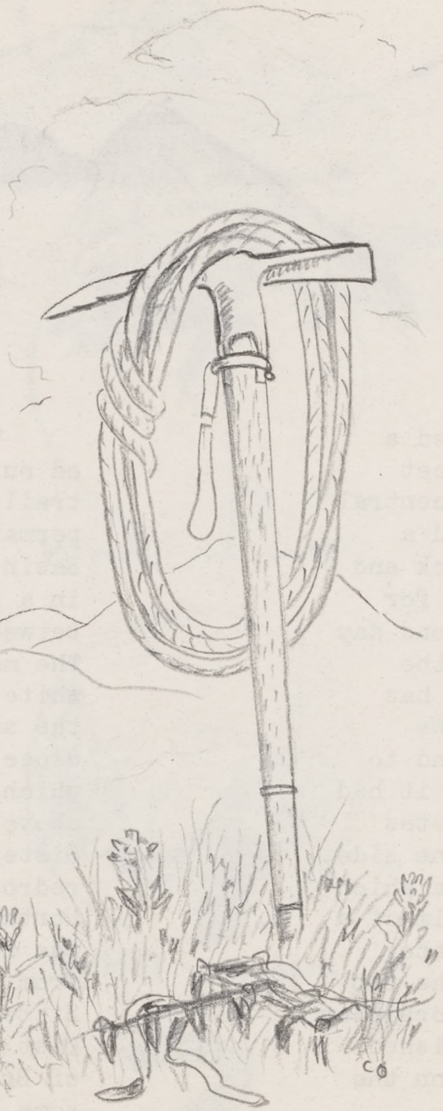


On the first day, Virlis led a climb of Bachelor Butte, 9000 feet high and standing out from the central group of mountains. It involved a long trudging ascent of bare rock and snow and was a tough initiation for panorama from the top. The second day outing gave us a clear idea of the intense volcanic activity which has only just ceased in the area. We drove to Lava Butte south of Bend to see how the stream of lava from it had filled the old bed of the Deschutes river and forced the river to one side, then we went on to Mount Paulina which is really a high point on the rim of a collapsed volcano similar to Crater Lake. Forty members hiked to the top with Virlis and later explored obsidian flows within the crater and finished the day by visiting Lava tubes on the route back to Bend.

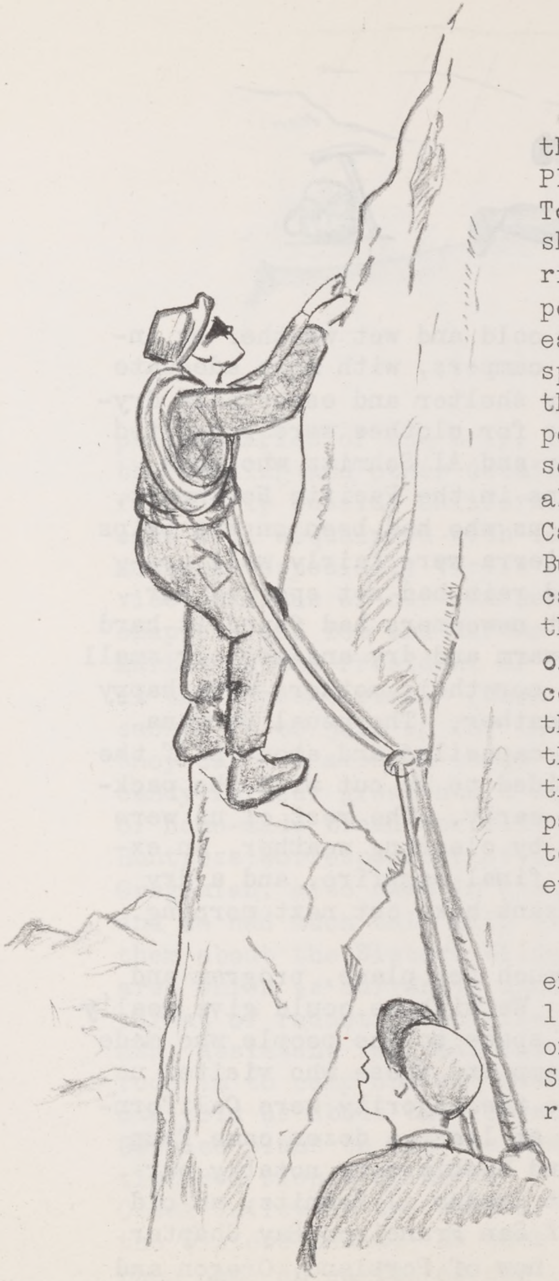
Then we packed our dunnage, parked our cars at the foot of Fall Creek trail and walked five miles in to our permanent campsite. The Green Lakes Basin has one large and two small lakes in a rather open sparsely wooded valley between South Sister and Broken Top. The map showed 6,500 altitude but the white bark pine at the tent door and the snow reaching down the mountain close to camp indicated timberline, which indeed was only a short distance above us. Across the lake, the South Sister reared up grandly to a rounded redrock peak at 10,354 ft; the tip of North Sister peeked over the ridge to the north of us and Middle Sister hid from sight behind the shoulder of South Sister which holds the Prouty Glacier. East of camp, stood the jagged crown of Broken Top, a volcano torn apart in some ancient cataclysm. It is only

9,160 feet high but is spectacular with streaks of crimson rock among three long patches of snow.

The camp itself was spread widely over a pumice mesa and the rather steep slopes along the lake. Wood was adequate for our party of 90, but was scattered and the volunteer woodcutters worked hard to cut, saw and haul enough for commissary and campfire. Two beautiful streams were handy to commissary and the water from this lava-covered hillside was wonderfully clear and good to drink. The lakes looked inviting and the children had fun around and in the shallow lower lake but for the most part the water remained cold and empty. Wildlife was not plentiful but we saw a few deer, many interesting birds, and almost no fish. Wildflowers were gorgeous. There were sheets of bloom on the pumice flats and on the steep slopes to the lake. Color seemed more brilliant there than in the Sierra and the mixture of scarlet paintbrush, blue lupin, and mimulus in "shocking pink" was a new experience to Californians.



"Settling down day" included a demonstration and practice in the technique of climbing (and falling) on snow and ice. These are most necessary skills in these northern mountains. Crampons and ice axes became an essential part of the climbers equipment up here and our party was short of these aids which were in fact entirely new to many of us. We at least had an excellent chance to see and learn from the experts at work on snow slopes close to camp. After these preparations we set about exploring the area. A group of eleven experienced climbers went off on a stub camp trip to climb North and Middle Sister, and the rest of us went to Moraine Lake just around the southeast shoulder of South Sister. It was all supposed to be on the same contour but after we had climbed the cliff from Fall Creek to Moraine Lake we did not believe in maps. The lake was open and sunny and just warm enough for swimming, and even better was the lovely small lake in the woods halfway there which became a favorite lazyman's haven.

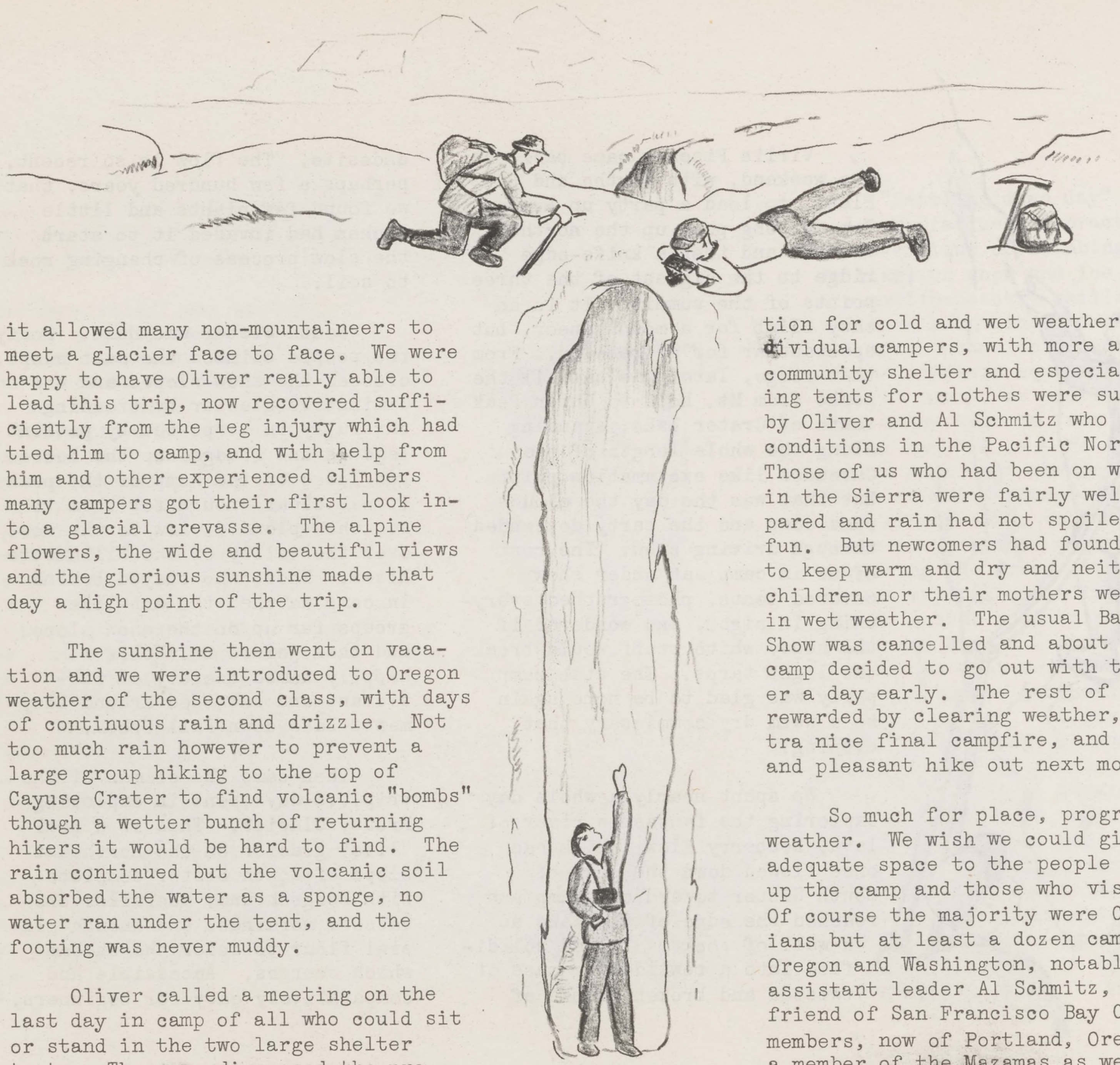


Virlis Fischer came back for the weekend, with Martha and Bob Platt, to lead a party up Broken Top, a long pull up the northern shoulder and then a knife-edge ridge to the highest of the three points of the summit. It is an easy climb for a mountaineer, but spectacular for a freshman. From that ridge, later, we saw all the peaks from Mt. Hood to Union Peak south of Crater Lake, standing along the whole length of the Cascades like exclamation points. But that was the day the clouds came down and the party descended through driving snow. The rest of us in camp sat under snow covered tents, photographed everything in sight, and wondered if the heavy white stuff would break the light tarps. The stub camp party was glad to be home again to a warm dry commissary that evening.

We spent nearly a whole day exploring the fantastic river of lava, Neuberry Flow, which had once flowed down the side of South Sister toward our camp and reached the edge of the lake as a wall of rocks. It had solidified into a bewildering mass of twisted and broken chunks of andesite. The flow is so recent, perhaps a few hundred years, that we found few plants and little lichen had invaded it to start the slow process of changing rock to soil.

South Sister was next. Forty-two people climbed the east slope, crossed the snow slopes and the diminutive glacier by treading carefully in steps cut by patient leaders and trudged up the loose red scree on the hump of the peak. It was clear enough for them to see the splendid view to the west over the valley of the Willamette River. Those who stayed behind in camp watched the ant-like groups far up on the snow slopes and then joined Dr. Wolff's happily named Society of Subsidians and subsided around Lazyman's Lake down Fall Creek.

Then came the climax of the trip...a day spent in exploring Prouty Glacier. This is a real "live" glacier on the northeast slope of South Sister complete with bergschrund, icefalls, crevasses, moraines, and enough glacial flour to color the stream which emerges. Accessible and comparatively easy for beginners,

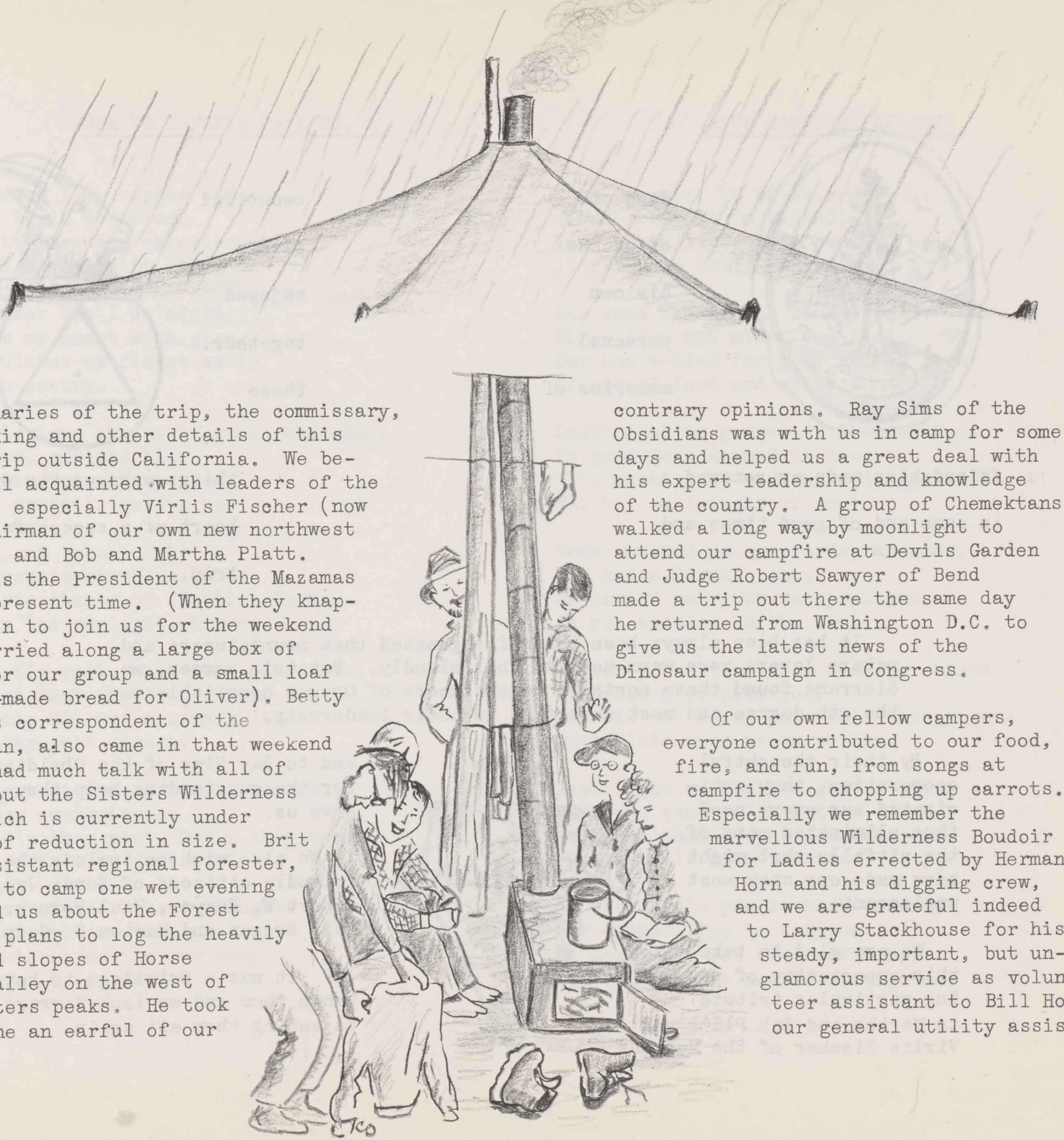


it allowed many non-mountaineers to meet a glacier face to face. We were happy to have Oliver really able to lead this trip, now recovered sufficiently from the leg injury which had tied him to camp, and with help from him and other experienced climbers many campers got their first look into a glacial crevasse. The alpine flowers, the wide and beautiful views and the glorious sunshine made that day a high point of the trip.

The sunshine then went on vacation and we were introduced to Oregon weather of the second class, with days of continuous rain and drizzle. Not too much rain however to prevent a large group hiking to the top of Cayuse Crater to find volcanic "bombs" though a wetter bunch of returning hikers it would be hard to find. The rain continued but the volcanic soil absorbed the water as a sponge, no water ran under the tent, and the footing was never muddy.

Oliver called a meeting on the last day in camp of all who could sit or stand in the two large shelter tents. There we discussed the problems of camping outside the generous California climate. Better preparation for cold and wet weather by individual campers, with more adequate community shelter and especially drying tents for clothes were suggested by Oliver and Al Schmitz who know conditions in the Pacific Northwest. Those of us who had been on wet trips in the Sierra were fairly well prepared and rain had not spoiled our fun. But newcomers had found it hard to keep warm and dry and neither small children nor their mothers were happy in wet weather. The usual Bandana Show was cancelled and about half the camp decided to go out with the packer a day early. The rest of us were rewarded by clearing weather, an extra nice final campfire, and a dry and pleasant hike out next morning.

So much for place, program and weather. We wish we could give really adequate space to the people who made up the camp and those who visited us. Of course the majority were Californians but at least a dozen came from Oregon and Washington, notably our assistant leader Al Schmitz, an old friend of San Francisco Bay Chapter members, now of Portland, Oregon and a member of the Mazamas as well as the Sierra Club. We saw the results of his good work in arranging the



preliminaries of the trip, the commissary, the packing and other details of this first trip outside California. We became well acquainted with leaders of the Mazamas, especially Virlis Fischer (now vice-chairman of our own new northwest chapter) and Bob and Martha Platt. Martha is the President of the Mazamas at the present time. (When they knapsacked in to join us for the weekend they carried along a large box of candy for our group and a small loaf of home-made bread for Oliver). Betty Huntress correspondent of the Oregonian, also came in that weekend and we had much talk with all of them about the Sisters Wilderness area which is currently under threat of reduction in size. Brit Ash, assistant regional forester, rode in to camp one wet evening and told us about the Forest Service plans to log the heavily timbered slopes of Horse Creek Valley on the west of the Sisters peaks. He took them home an earful of our contrary opinions. Ray Sims of the Obsidians was with us in camp for some days and helped us a great deal with his expert leadership and knowledge of the country. A group of Chemektans walked a long way by moonlight to attend our campfire at Devils Garden and Judge Robert Sawyer of Bend made a trip out there the same day he returned from Washington D.C. to give us the latest news of the Dinosaur campaign in Congress.

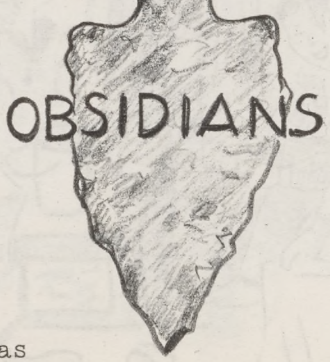
Of our own fellow campers, everyone contributed to our food, fire, and fun, from songs at campfire to chopping up carrots. Especially we remember the marvellous Wilderness Boudoir for Ladies erected by Herman Horn and his digging crew, and we are grateful indeed to Larry Stackhouse for his steady, important, but unglamorous service as volunteer assistant to Bill Hope, our general utility assistant.

Each one of us has his own personal memories of friendships made or renewed in camp and of good times and beautiful places enjoyed together. These things make up the warm heart of a successful trip.

It has been always been taken for granted that mountaineers and nature lovers were warm hearted and friendly. But this summer, we Sierrans found these northern mountaineers of Oregon hospitable to the nth degree and most unselfish in their leadership.

By their thoughtful cooperation, they anticipated our every need thus eliminated many of the pitfalls that might have made our stay most unpleasant.

We are glad to take this opportunity of paying particular tribute to Martha and Bob Platt and Virlis Fischer of the Mazamas and to Ray Sims of the Obsidians for the outstanding help they gave us.



We also wish to include the friendly citizens of Bend; Judge Robert W. Sawyer, Paul Hosmer, Phil Brogan and Marion S. Cody.

It was a privilege to have known them and we look forward to seeing them all again.

ODE TO CHICKIE PAIL NO. 2

Each eve as I my supper end,
My eyes begin to shine,
I turn to view the chickie pails
And rush to stand in line.

Pail Number Two I do adore,
It fills my heart with glee,
It stimulates my finest self,
I wax to poetry.

Those glorious shades of green and pink,
And amber, red and blue
Rival e'en yon alpine glow
And the sunset's golden hue.

Pail #2, oh vessel fair!
Thy viscous contents glimmer
With eerie shapes of floating forms,
Which in the sunlight shimmer.

Oh majestic pail, with brim o'erflown,
Thou hast that unctuous sheen,
Would only all our mountain lakes
Attain thy cast serene!

Some say that thou art most impure,
That bugs contaminate;
What fools they are! Don't they recall
It's food that we just ate?

Remember, please, these thoughts I've aired,
When e'er you see this pail;
Exalt this object in our camp,
"Thee, No. 2, we hail!"

STUB CAMPERS' WELCOME

Stub Campers, oh WE welcome you!
Stand ready to be kissed!
Your empty tents have haunted us,
It's YOU we truly missed.

Our cook has fed us doubly well,
Since from OUR midst you fled,
Our heart bled for your skimpy fare
Of canned food and white bread.

Last night we gorged on Chinese food
So good Dean downed it too;
This morning we ate shirred eggs on toast!
Ha, ha, we thought of you!

Some watched you yesterday at noon,
You had a dismal camp,
We envied not your sorry plight,
As you huddled in the damp.

We saw you strive your beds to shield
From wet precipitation,
You did not hike, your sole thought was
Just plain self preservation.

Last night we heard a gentle rain
Upon our tent walls patter,
We trust that to you mountaineers
The rainfall didn't matter.

So once again you're back in camp
Our dinner line to lengthen,
We hope that you are rested up,
Our chore gangs now to strengthen!

ODE TO THE MAIDEN AUNT

The hiker who is reasonable,
Who tries not what he can't,
Yet seems to see most everything,
Is called the "Maiden Aunt".

This name seems odd, irrevelent,
Completely out of place,
For it implies the womanish,
The lavender and lace.

On second thought, there may be times
When this label does apply,
For on every trip there's much that fits,
If you're watching on the sly.

A case in point concerns the hike
To Cub and Orchid Lakes,
TWO LEADERS, mind you, on this hike,
When ONLY ONE it takes.

One at the head to steer the line,
The other took the rear,
With orders flying fore and aft,
We tightly meshed in gear.

With two great minds to guide our fate,
We gave up every care,
We danced around erratics dread
While staring in the air.

I was the one who hiked behind
Two females gaily talking,
Camp gossip flowed so freely,
I forgot that I was walking.

The camera bugs were out of hand,
Our leaders 'mongst them snapping,
We posed about for candid shots,
While others stood by yapping.

On the whole trip we stopped too oft,
That was our utmost gripe,
For leaders must smoke cigarettes,
And pause to puff a pipe.

Now if you've got the patience
Such tomfoolery to swallow,
Then I'd say the Maiden Aunts
Are a worthy gang to follow.

REPORT ON TRIP TO LAKE ITALY

Lake Italy was our destination,
With Peter the man at the head,
All trails he knows backwards and forwards,
But this trail he lost once instead.

Soon back to the trail did he lead us
To wallow through acres of mire.
We ished and we squished through wet meadows,
Of this he seemed never to tire.

Then on through the pines did we wander,
And up a steep slope we did forge,
Till last after hours of hiking,
We encountered the famed gorgeous gorge.

Onward as we neared our Lake It'ly
All gathered some wood as we "oughter",
We dragged up a half ton of timber
To heat up a billy can of water.

The anglers with our leader did gather
On the lake shore gaily to cast,
Restless hikers sat idly there wondring
How long this nonsense would last.

Their toil brought not even a nibble,
In pity we shed a real tear,
Just think of the trouble and effort
In transporting their long fishing gear.

Our luncheon was eaten at leisure,
One tried peanut butter with snow,
Some swam in our drinking water,
With that we decided to go.

Our leader, undaunted by It'ly,
Sought out a new fishing lake;
Twas fishless, as the hikers suspected,
We wept and we cried for his sake.

Our Peter, an angler determined,
Could never accept the word, "fail",
Stayed behind on the stream unmolested
Until he could bring back a tale.

* * *

ODE TO THE Ph.D.

Listen, Base Campers, and you shall hear
From a Ph.D. who dragged near the rear
Of a line of climbers, who wished to display
Their ability to traverse the worst route of the day.

We inched our way up a steep and bold face,
When our leader urged us to quicken our pace,
For the M.A.'s were coming up a reasonable trail,
Hurry we must! or be passed without fail.

We arrived on Flat Top and got a quick view,
Gulped a handful of snow, smelled a flower or two;
Then down the talus we charged with full speed,
For thirty seconds on Flat Top are all one could need!

Down talus like yaks in spirited flight,
Till one of our members on her rear end did light,
But Ph.D.'s are tough, she didn't suffer at all:
What Nature provided had cushioned her fall.

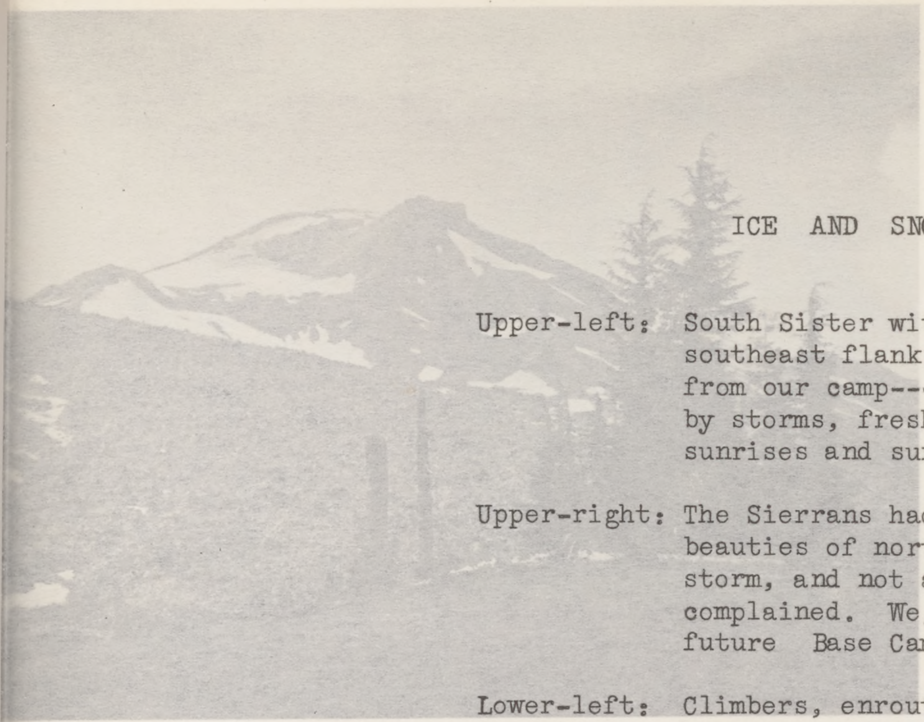
Downward, downward, down the talus we were led,
We enjoyed the prospect of the steep ascent ahead;
Finally we began upward to bound
Over boulders of granite scattered around.

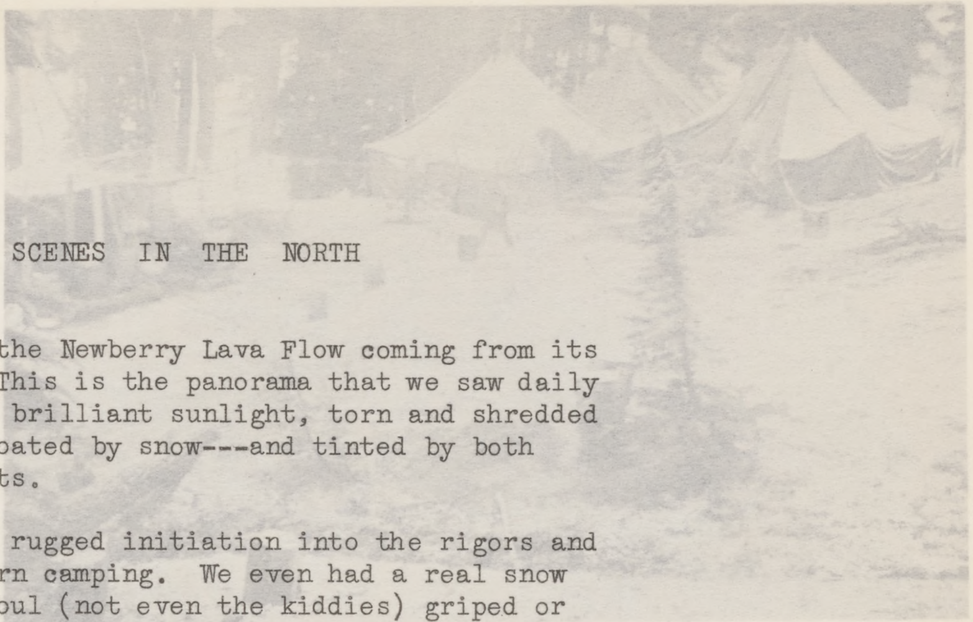
Out of earshot of the leader oaths were set free
That make our children's "new word" sound like pink tea;
"Granite-happy", one growled in a sarcastic streak
As we scaled the bench below the towering peak.

Behind on the bench stayed one of our team,
Intelligent, wise - in short, on the beam,
While the rest of us pecked to the top of the pass,
Exposure galore, even a chimney, alas!

But at the crest of the pass, we all ate our snack,
But before we were through, we then hustled back,
Because down on the bench some had left food -
To delay their luncheon would be quite rude.

Our leader had marked a trail on a previous day,
But this he lost, or abandoned, for a devious way;
The moral of all this is plain to see:
"The ass is in the class of the Ph.D."





ICE AND SNOW SCENES IN THE NORTH

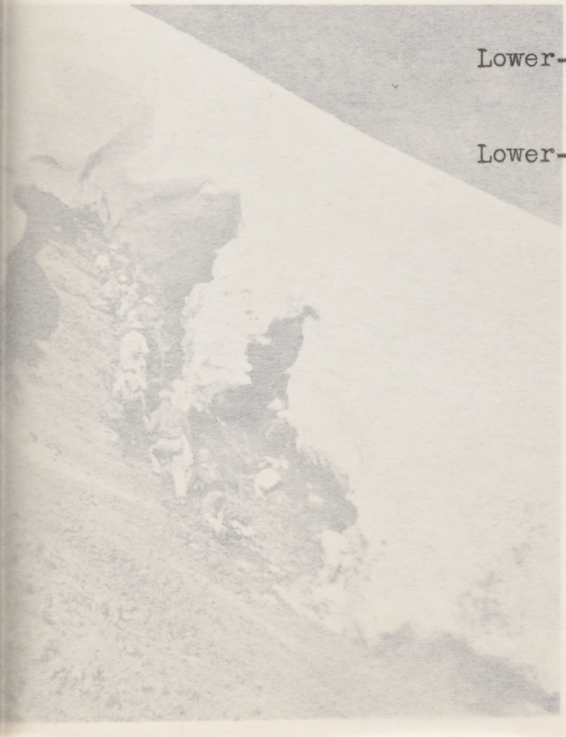
Upper-left: South Sister with the Newberry Lava Flow coming from its southeast flank. This is the panorama that we saw daily from our camp---in brilliant sunlight, torn and shredded by storms, fresh coated by snow---and tinted by both sunrises and sunsets.

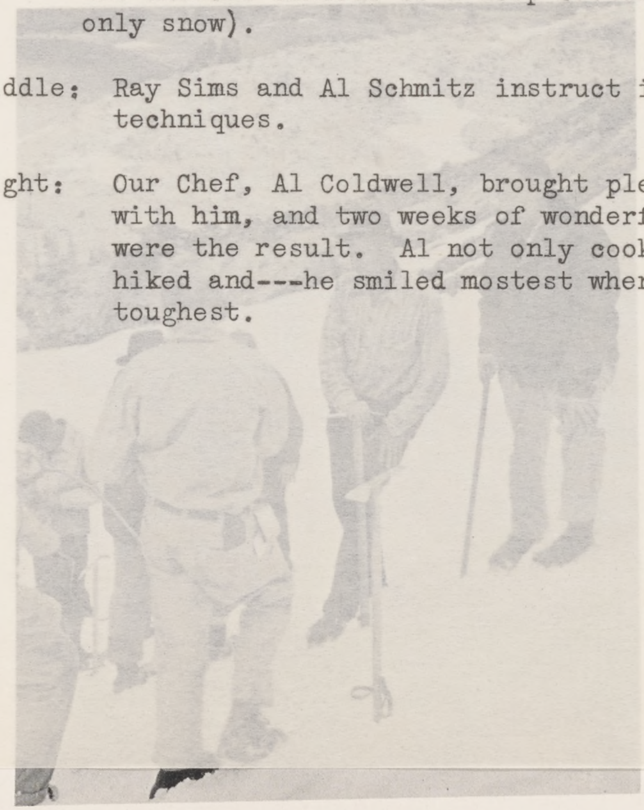
Upper-right: The Sierrans had a rugged initiation into the rigors and beauties of northern camping. We even had a real snow storm, and not a soul (not even the kiddies) griped or complained. We, however, learned many lessons on how future Base Camps should be conducted.

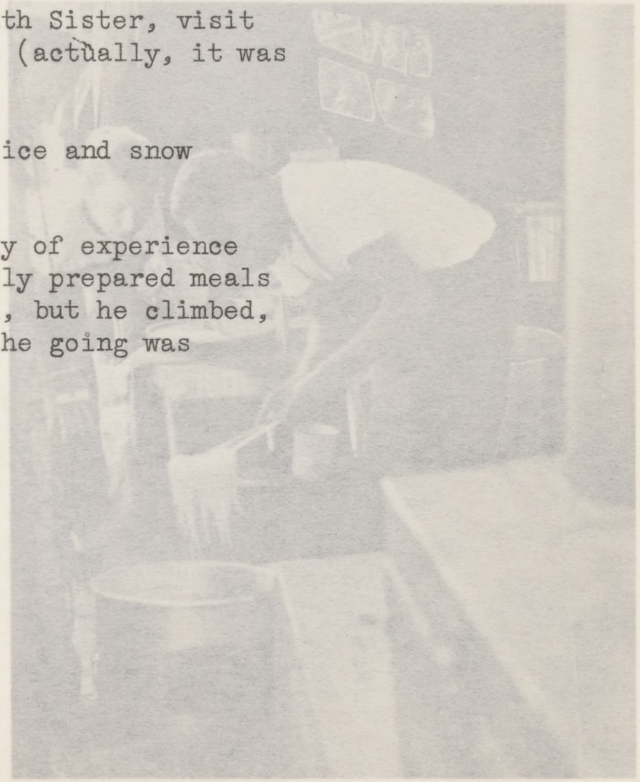
Lower-left: Climbers, enroute to the summit of South Sister, visit the awesome innerds of a deep crevasse (actually, it was only snow).

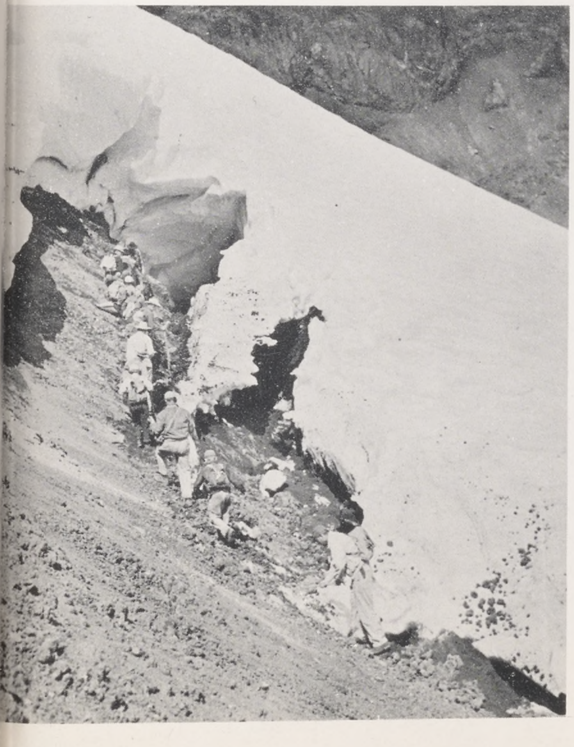
Lower-middle: Ray Sims and Al Schmitz instruct in ice and snow techniques.

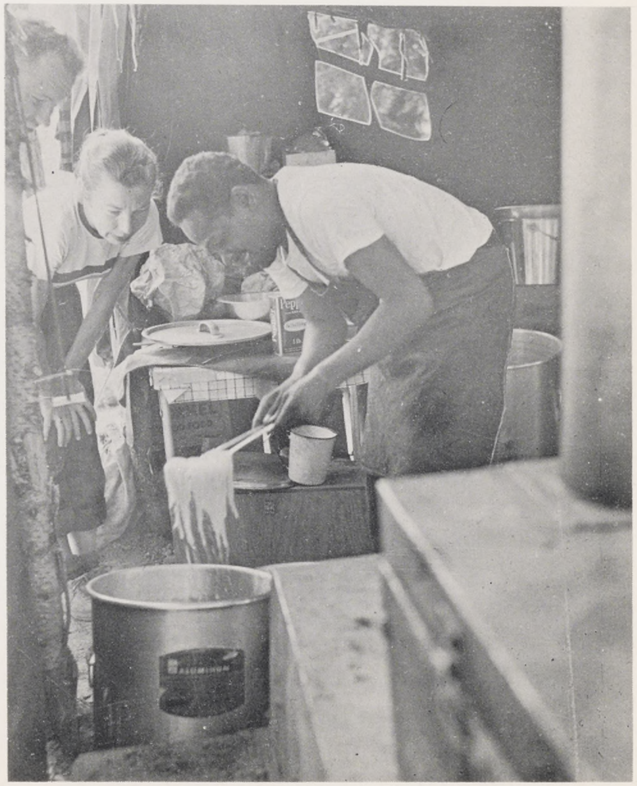
Lower-right: Our Chef, Al Coldwell, brought plenty of experience with him, and two weeks of wonderfully prepared meals were the result. Al not only cooked, but he climbed, hiked and---he smiled mostest when the going was toughest.



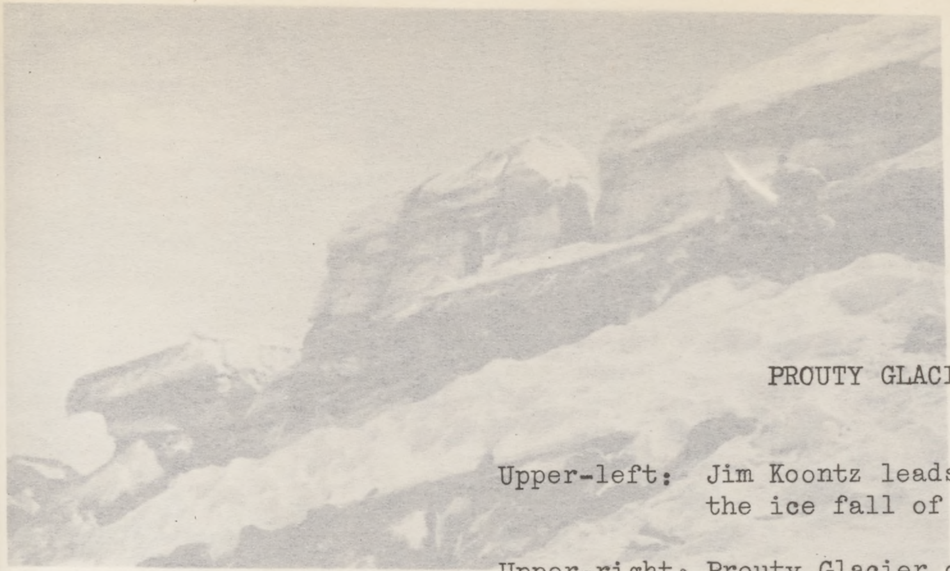


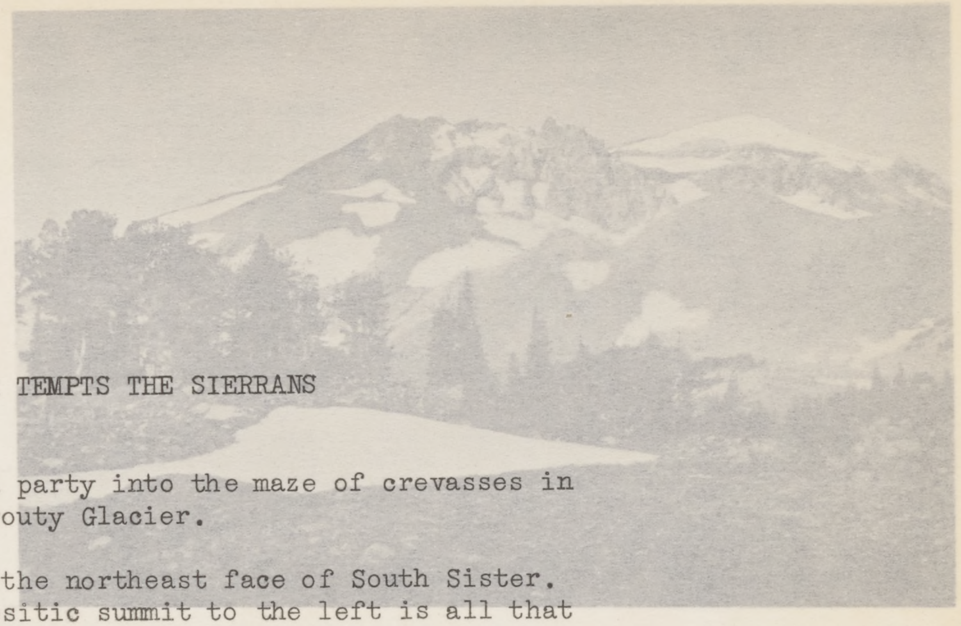






PROUTY GLACIER TEMPTS THE SIERRANS

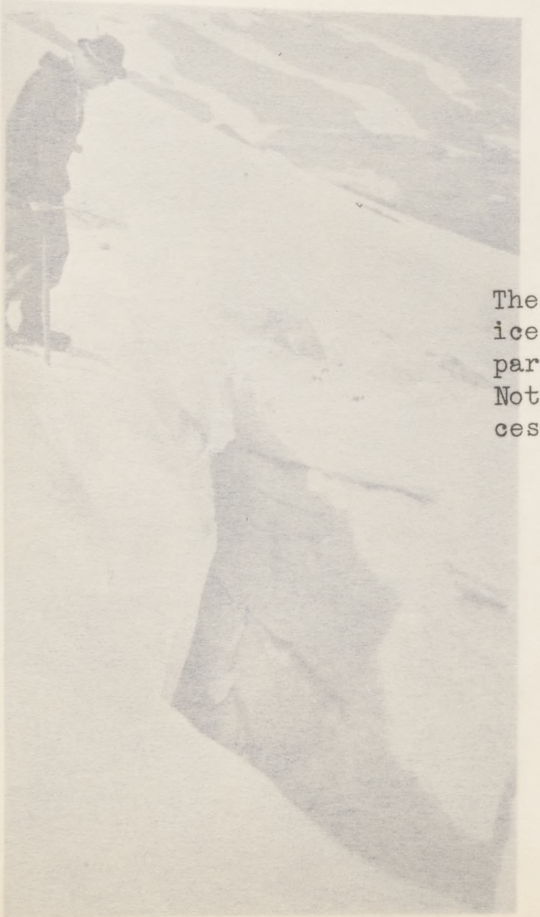


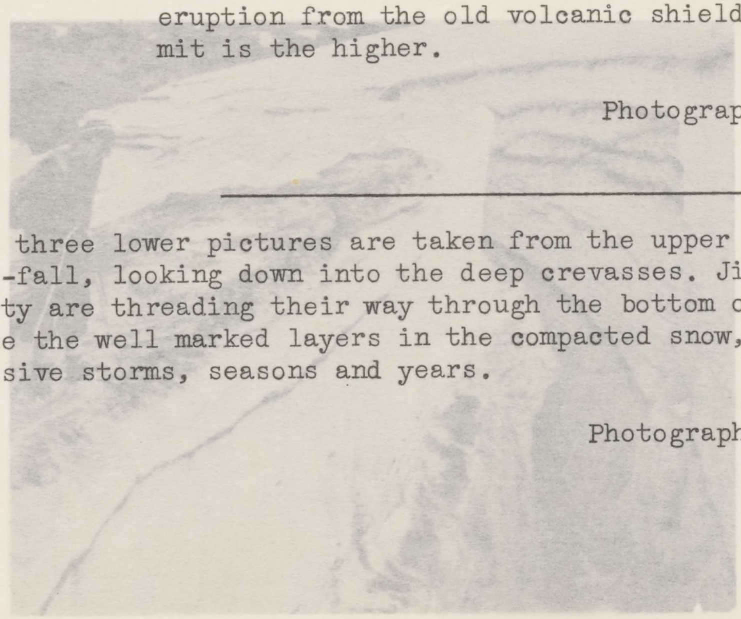


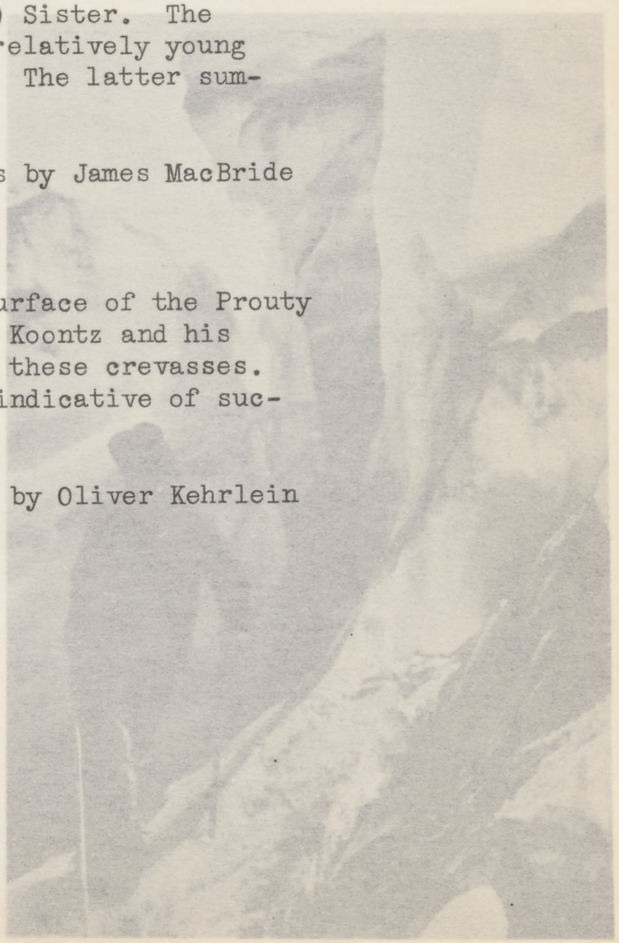
Upper-left: Jim Koontz leads a party into the maze of crevasses in the ice fall of Prouty Glacier.

Upper-right: Prouty Glacier on the northeast face of South Sister. The shattered andesitic summit to the left is all that remains of the Older (and very ancient) Sister. The rounded snow summit to the right is a relatively young eruption from the old volcanic shield. The latter summit is the higher.

Photographs by James MacBride

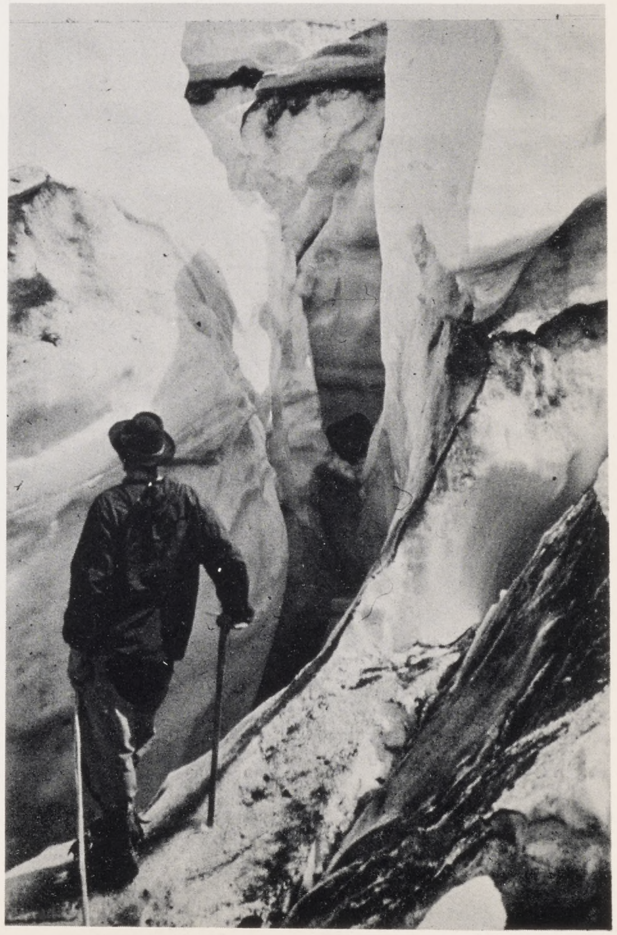


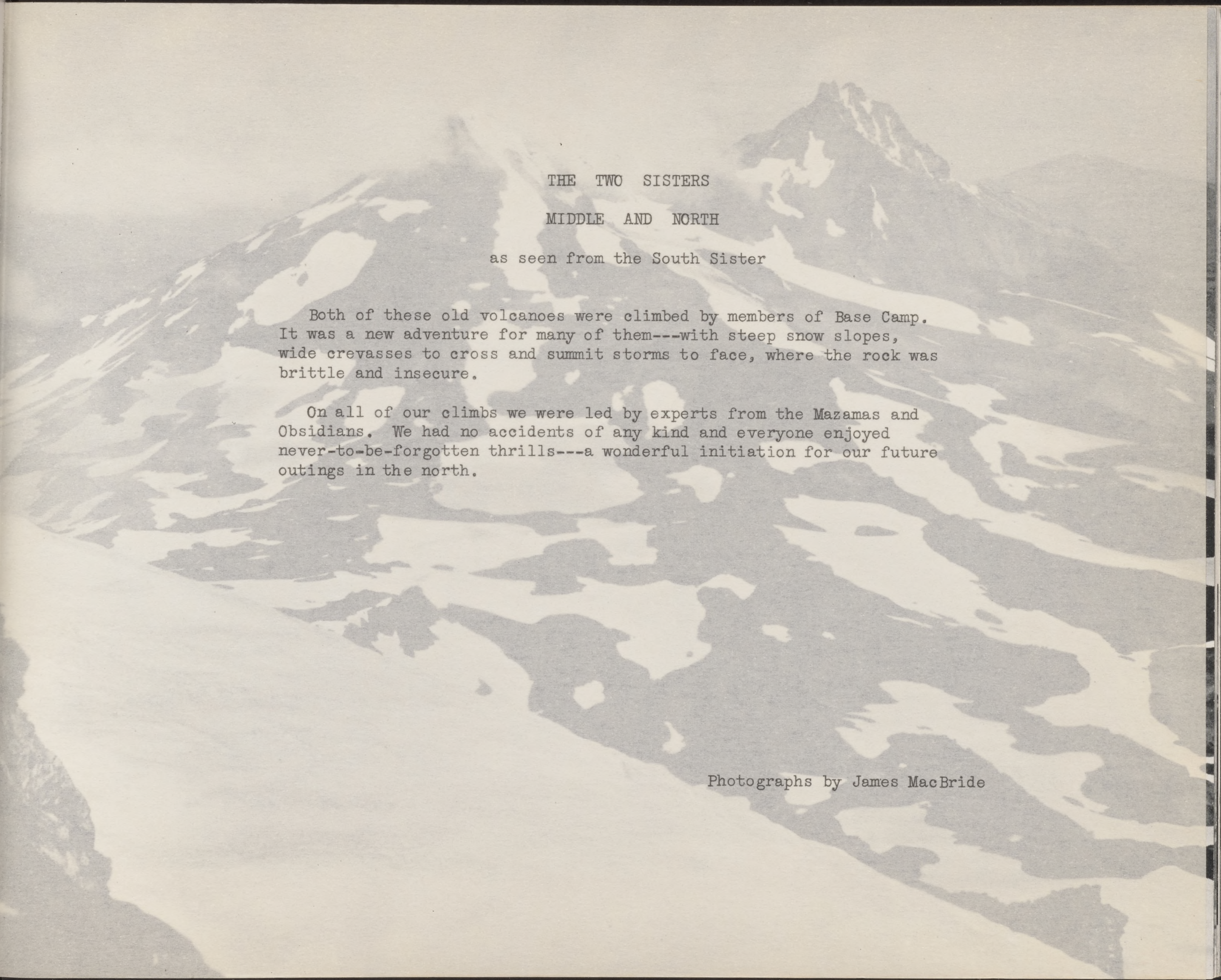




The three lower pictures are taken from the upper surface of the Prouty ice-fall, looking down into the deep crevasses. Jim Koontz and his party are threading their way through the bottom of these crevasses. Note the well marked layers in the compacted snow, indicative of successive storms, seasons and years.

Photographs by Oliver Kehrlein





THE TWO SISTERS

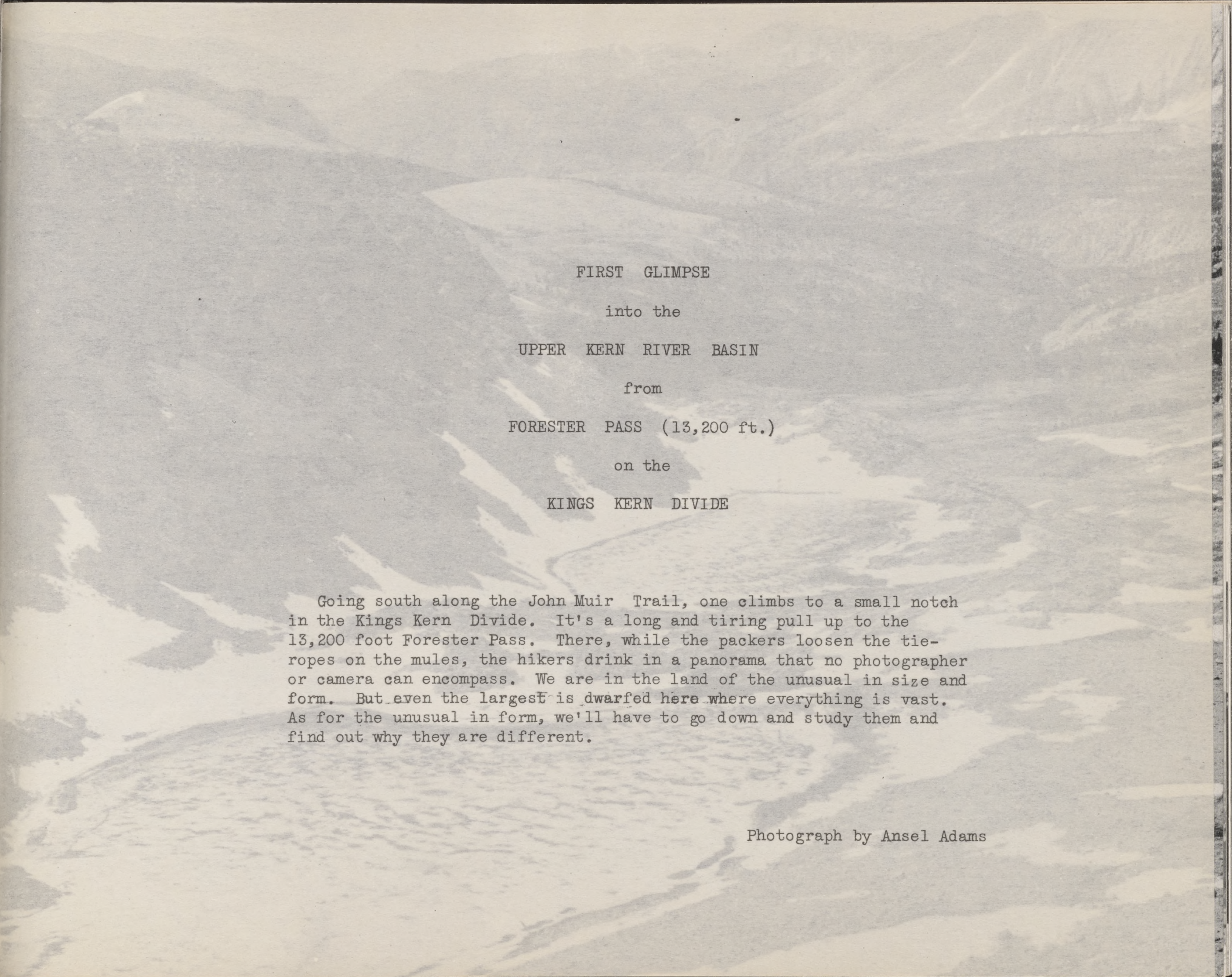
MIDDLE AND NORTH

as seen from the South Sister

Both of these old volcanoes were climbed by members of Base Camp. It was a new adventure for many of them---with steep snow slopes, wide crevasses to cross and summit storms to face, where the rock was brittle and insecure.

On all of our climbs we were led by experts from the Mazamas and Obsidians. We had no accidents of any kind and everyone enjoyed never-to-be-forgotten thrills---a wonderful initiation for our future outings in the north.

Photographs by James MacBride



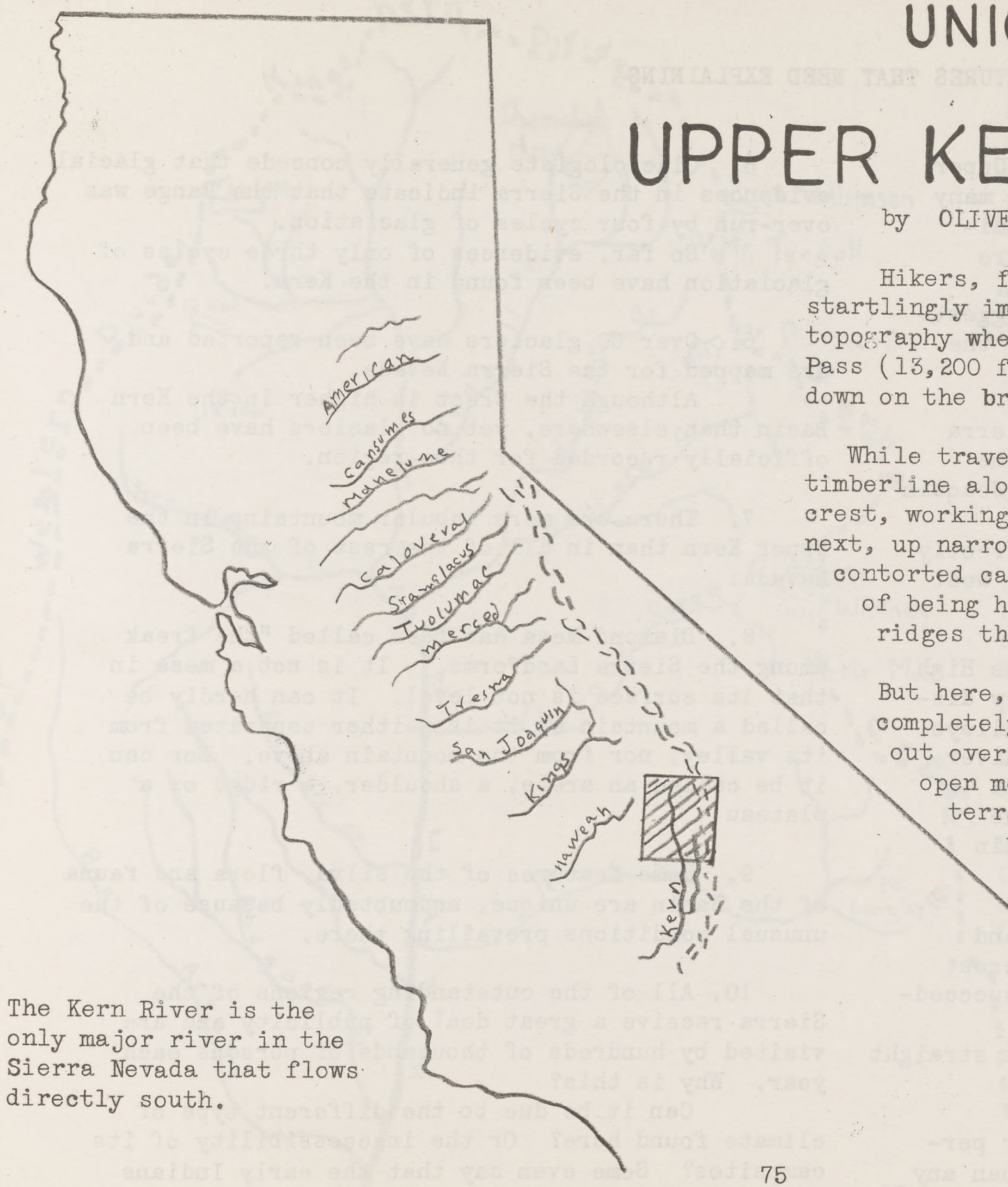
FIRST GLIMPSE
into the
UPPER KERN RIVER BASIN
from
FORESTER PASS (13,200 ft.)
on the
KINGS KERN DIVIDE

Going south along the John Muir Trail, one climbs to a small notch in the Kings Kern Divide. It's a long and tiring pull up to the 13,200 foot Forester Pass. There, while the packers loosen the tie-ropes on the mules, the hikers drink in a panorama that no photographer or camera can encompass. We are in the land of the unusual in size and form. But even the largest is dwarfed here where everything is vast. As for the unusual in form, we'll have to go down and study them and find out why they are different.

Photograph by Ansel Adams

UNIQUE FEATURES of the UPPER KERN RIVER BASIN

by OLIVER KEHRLEIN



The Kern River is the only major river in the Sierra Nevada that flows directly south.

Hikers, following the John Muir Trail, are startlingly impressed by a new and different type of topography when they reach the top of Forester's Pass (13,200 ft.) on the Kings Kern Divide and look down on the broad expanse of the Kern River Basin.

While traveling south, their route had hugged the timberline along the westerly flank of the Sierra crest, working its way out of one watershed into the next, up narrow gorges, over rugged passes and down contorted canyons. Always there was that feeling of being hemmed in by the jumble of peaks and ridges that are so typical of the Sierra.

But here, on this high pass, the scene changes completely, and the traveller suddenly looks out over a new and spacious world--a high and open montane plateau, with broad forested terraces and flat-topped mountains, higher than any he has seen. Here his distant vistas are no longer toward the west, but southward as far as the eye can see.

Actually, he is in a different Sierra--different in form and formation. And, if he is curious, he will want to know why.

UNIQUE FEATURES THAT NEED EXPLAINING

Here are ten unusual features of the Upper Kern River Basin and undoubtedly there are many more. Where there are so many unusual conditions, all located in a single region, there must be a reason, or a set of reasons. So, we'll start the ball a-rolling with our suggested causes, hoping that others will pick up the ball and carry it further.

1. All of the major rivers in the Sierra tend to flow westward in conformity with the overall slope of the range toward the San Joaquin Valley.

The Kern River, however, flows directly south for 60 miles before turning abruptly west and into the San Joaquin Valley.

2. There is a general tendency in the High Sierra, for the topography to be thoroughly dissected --- i.e. cut by deep canyons and valleys.

But the Upper Basin of the Kern River is a broad, high mountain basin, with level plateaus that step back interraces from the rim of the gorge to the surrounding mountain slopes.

3. All of the major Sierra streams and valleys, as they make their way from the crest to sea level, twist and turn around each succeeding ridge and spur.

Not as the Kern. It is almost as straight as if cut by a giant cleaver.

4. The Upper Kern Basin has a higher percentage of 13,000 and 14,000 foot peaks than any other similar region in the Sierra.

5. Glaciologists generally concede that glacial evidences in the Sierra indicate that the Range was over-run by four cycles of glaciation.

So far, evidences of only three cycles of glaciation have been found in the Kern.

6. Over 60 glaciers have been reported and are mapped for the Sierra Nevada.

Although the Crest is higher in the Kern Basin than elsewhere, yet no glaciers have been officially recorded for this region.

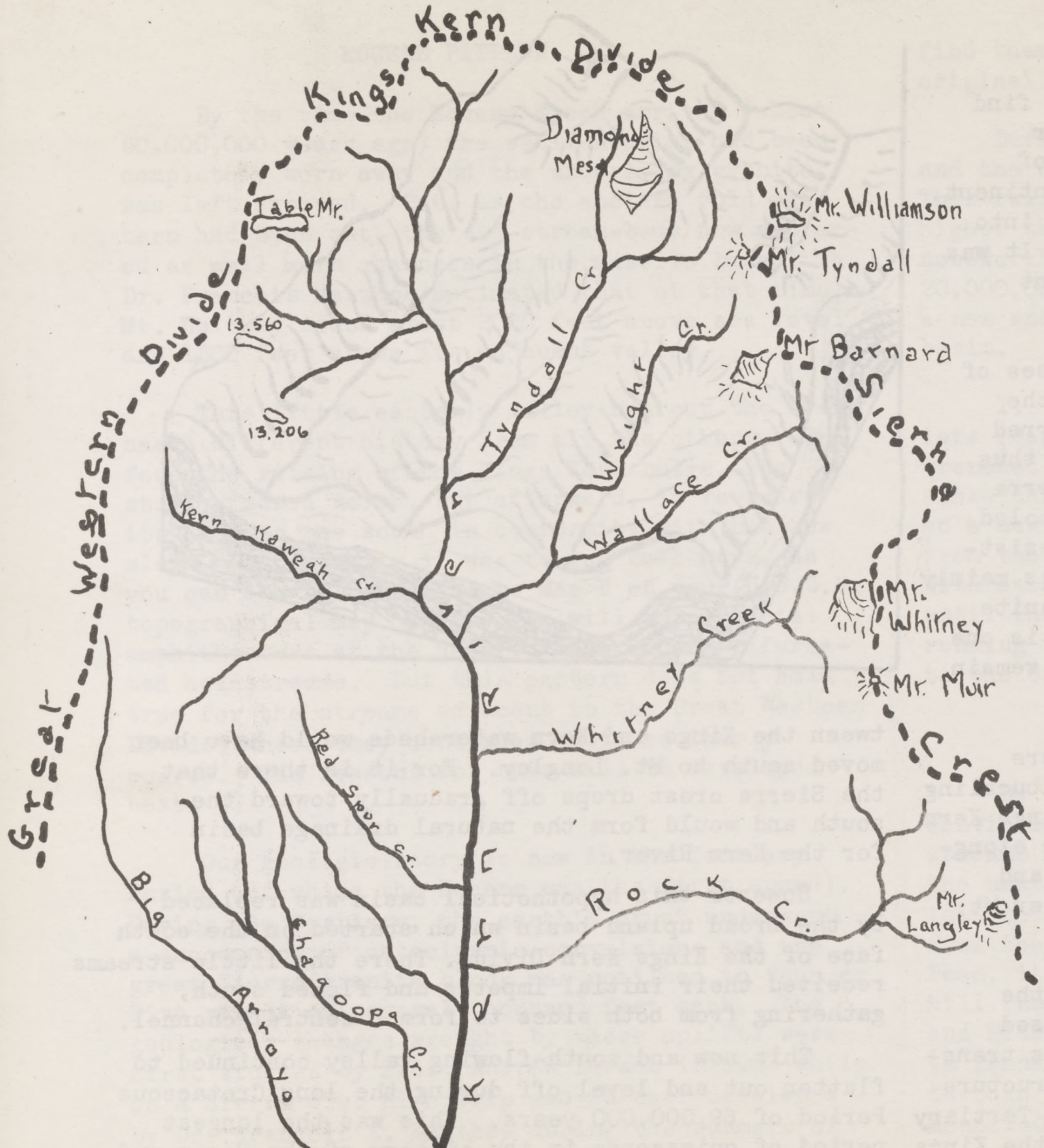
7. There are more tabular mountains in the Upper Kern than in all of the rest of the Sierra Nevada.

8. Diamond Mesa has been called "the freak among the Sierra Landforms." It is not a mesa in that its surface is not level. It can hardly be called a mountain as it is neither separated from its valley, nor from the mountain above. Nor can it be called an arete, a shoulder, a ridge or a plateau.

9. Some features of the silva, flora and fauna of the Basin are unique, undoubtedly because of the unusual conditions prevailing there.

10. All of the outstanding regions of the Sierra receive a great deal of publicity and are visited by hundreds of thousands of persons each year. Why is this?

Can it be due to the different type of climate found here? Or the inaccessibility of its campsites? Some even say that the early Indians placed a taboo on the Basin.



IN GENERAL

The Upper Kern River Basin (for the purposes of this paper) is that portion lying north of Rock Creek and the Big Arroyo. Roughly it contains about 400 square miles and forms the south-easterly corner of the Sequoia, and Kings Canyon National Park, at 36° 30' N. and 118° 17' W. It marks the southerly end of the High Sierra, as the range drops off quickly from there south. In elevation, it runs from 6800 ft. at Upper Funston Meadow, to 14,496 feet on the summit of Mt. Whitney --- a differential unequalled even in the Grand Canyon of the Colorado.

The rim of the basin is formed: on the east by the Sierra Crest, which separates it from Owens Valley, 10,000 feet below. Access to the Basin over the Crest can be gained by Shepherd's Pass (12,000 ft.) to the north; Whitney Crest Trail Pass (13,600 ft.) at the middle; and toward the south, by Army Pass (12,000 ft.) and Cottonwood Pass (11,200 ft.) the lowest of the eastern approaches. On the north, the Basin is separated from the watershed of Kings River by the Kings Kern Divide which is crossed by the John Muir Trail at Forester Pass (13,200 ft.) To the west, the Basin is separated from the tributaries of the Kaweah River by the Great Western Divide. This Divide can be crossed at Kaweah Gap (10,800 ft.); or Blackrock Pass (11,400 ft.), Sawtooth Pass (11,500 ft.) or Franklin Pass (11,400 ft.)

Seen from the air, the Basin looks like a great oak leaf --- its stem, the Kern River gorge; its veins, the network of tributary streams; and its crinkled edges, the ragged silhouette of the three ranges that surround it.

IT ALL STARTED BACK IN GEOLOGIC TIME

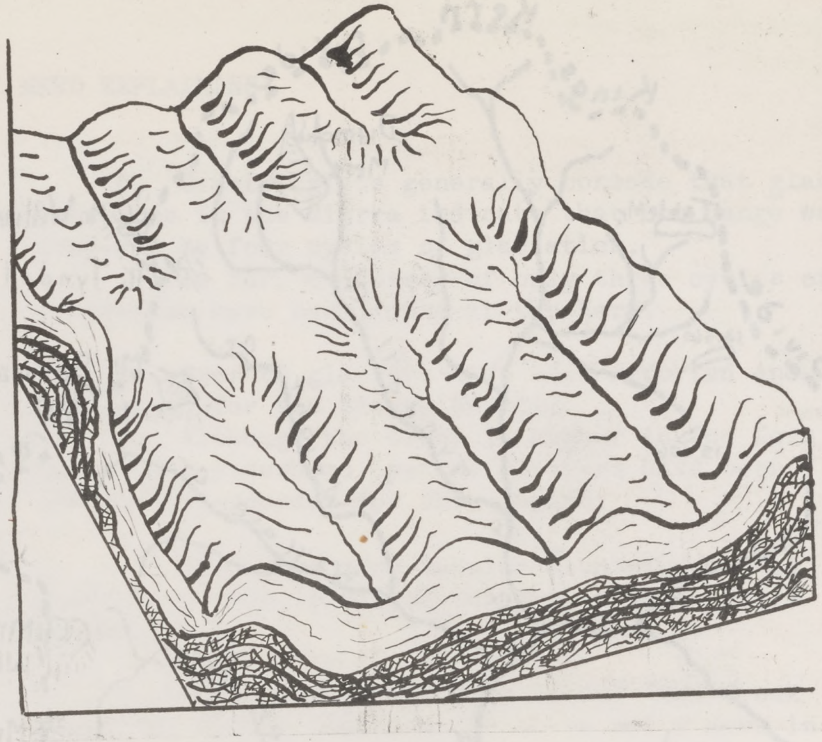
Many of the unusual features of the Basin find their origins back in the Jurassic Period, over 160,000,000 years ago, when thousands of feet of marine deposits covered this section of our continent. At the time, the earth's crust became wrinkled into long folds, trending northwest and southeast. It was these folds that set the pattern for our present Sierra.

Toward the end of the Jurassic, great masses of molten granite welled up from below to invade the marine sediments. This granitic invasion occurred in successive waves and in varying heights --- thus accounting for the greater elevation of the Sierra Crest and the Great Western Divide. Also it cooled down to form rocks of different textures and resistance. Thus the summit plateau of Mt. Whitney is mainly made up of aplite, a fine-grained resistant granite usually found only in hard narrow seams. This is one of the reasons why it has resisted erosion, to remain our highest peak.

But, to us, the most important local feature developed during the granite intrusion was the buckling up of a transverse ridge, known to us as the Kings Kern Divide. There the molten magma bulged up in an elongated dome, at right angle to the ancient folds and stretching from Mt. Keith on the Crest to Thunder Mt. on the Great Western Divide.

This transverse ridge formed a barrier to the northerly course of the ancient streams and caused them to reverse their flow and turn south. This transverse ridge was tough and resistant, both in structure and texture and resisted erosion all during the Tertiary Period. Had this barrier not been interposed, the Kings River (and its glaciers) would have quarried back to Mt. Whitney and possibly to Mt. Langley for its headwaters.

Let us carry this a step further. With the Kings Kern Divide eliminated, then the divide between the Kings and Kern watersheds would have been moved south to Mt. Langley. For it is there that the Sierra crest drops off gradually toward the south and would form the natural drainage basin for the Kern River.



However this hypothetical basin was replaced by the broad upland basin which started on the south face of the Kings Kern Divide. There the little streams received their initial impetus and flowed south, gathering from both sides to form a central channel.

This new and south-flowing valley continued to flatten out and level off during the long Cretaceous Period of 69,000,000 years. This was the longest period of quiescence in the history of the Basin and the erosion was correspondingly great. The sedimentaries were well worn off the ancient hills and deposited in the valleys. Granite became more and more exposed, with the pattern of the ancient hills and valleys well impressed on the basic rock.

EOCENE PATTERN

By the time the Eocene Epoch arrived (about 60,000,000 years ago) the sedimentaries had been completely worn away and the underlying granite was left exposed. But, as the ancient fold pattern had been set, the old stream-beds now appeared as well worn channels in the massive batholith. Dr. Francois Matthes estimated that at that time, Mt. Whitney stood about 2,000 feet above sea level and 1,500 feet above its adjacent valley.

This little easterly valley nearest the Crest has a different history from all the others. Before the raising of the Kings Kern bulge, its stream flowed north, but afterward, it reversed its flow to the south in conformity with the new slope. But finally it was to run both ways, as you can see by referring to Map B on your U.S.G.S. topographical map. Also, you will note glacial amphitheaters at the head of each of its bifurcated headstreams. But this pattern does not hold true for the streams adjacent to the Great Western Divide, where they continued their southerly course. The reasons for this will be developed next.

Our geologic story is now in the Tertiary Period (of which the Eocene was the first epoch). During the Tertiary, the earth's crust underwent a succession of cataclysmic convulsions and the great Sierra granite block was uptilted in four or five raises of several thousand feet each. The geological changes wrought by these uplifts were first studies by Prof. Andrew Lawson in 1903 while on a Sierra Club High Trip and further developed by Dr. Francois E. Matthes during the summers of 1936 and 1937. It was our privilege to work in the field with Dr. Matthes during those summers and to benefit by his meticulous studies. In this paper we are leaning heavily on their data -- and presenting them in a very simplified form. If you find them over-simplified, we refer you to the original articles for fuller details.

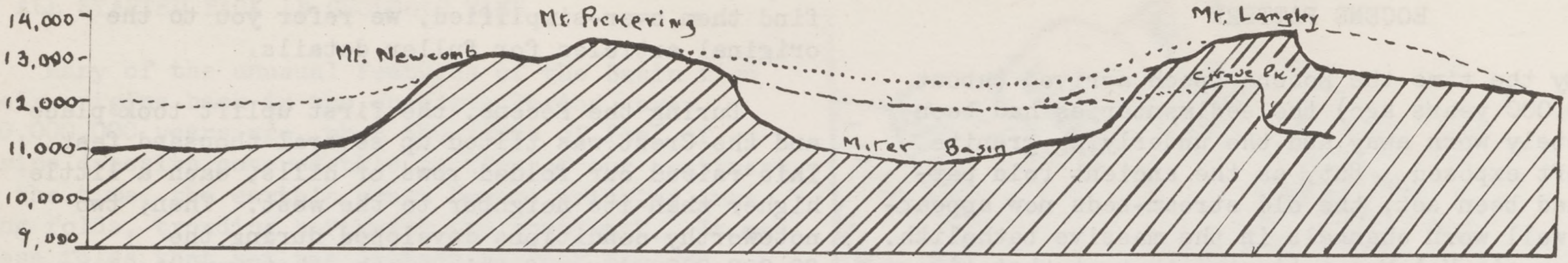
During the Eocene, the first uplift took place and the Crest was tilted up several thousand feet. This raised our folded rows of hills, each a little higher than its neighbor to the west. Then, two noteworthy conditions developed during the 20,000,000 years of this epoch, that were to leave a new and permanent physiographic pattern in the basin.

1. With the uptilting, the little side-streamlets (especially on the east wall of the valleys) trenched their channels deeper, and in weaker places broke through to the next valley. Thus was established a new zigzag pattern of watercourses which reached from the Crest to the lowest and central channel. With each subsequent uplift, the streams cut deeper until they had carved out a system of irregular spurs, running into the central channel and at right angles to the Crest.

NEW PATTERN FORMED

By looking at the map (and you can see it quite convincingly in the field) you will note how the streams have twisted and turned from one valley to the next on their way to the main channel. For instance, take Whitney Creek: it gathers headwaters from the north and south from the "first" valley. Then, it flows west via a break-through in the next hill (now represented by high points on Mts. Hale and Hitchcock) and turns south at Crabtree Meadows (a remnant of the second valley) and finally breaks through the last hill, now represented by the Sandy Meadow-Guyot Flat plateau.

Similar patterns will be noted in Wright Creek and Wallace Creek as well as in the westward direction of their intervening spurs: the west shoulders of Mts. Tyndall and Barnard, the summit ridges of



Mts. Young and Hitchcock, and that of Mts. Pickering and Newcomb. The pattern is different on the western side of the basin. Here the westward slope of the Sierra block did not favor the flow of the streams toward the Kern. Consequently, by compromise, they flowed in a southerly direction and broke through later. Thus, the Kern Kaweah River carved out the canyon between Kern Ridge and Picket Guard Ridge; Red Spur Creek formed its Red Spur; the Big Arroyo trenched its deep canyon beneath the Kaweahs and finally, the Little Kern River turned the Great Western Divide to the southeast. All of these valleys and intervening spurs have the general tendency toward the southeast.

TERRACED PLATEAUS FORMED

2. The other outstanding feature, the terraced plateaus, is one that strikes amateur and geologists alike with wonderment. Both Lawson and Matthes studied them and arrived at approximately the same conclusions.

During the early part of the Tertiary, the hills were relatively low and the valleys shallow. As time went on, erosion silted-in valley floors causing the streams to meander back and forth across the basin floor. Thus, the Basin became broad and flat--and the first and highest of the "terraced" plateaus was formed. Dr. Matthes called this plateau the Cirque Peak erosional surface, because it is so well preserved in the region around Mt. Langley and especially on the broad nivated summit-plain of Cirque Peak.

In the above diagram (greatly simplified and with elevations exaggerated) we have drawn a cross-section (east-west) through the pertinent mountains, with the present contours in a heavy line; those at the beginning of the Tertiary with a dotted line; and have shown the effects of the Eocene with dots and dashes.

To obtain the pre-Eocene profile, we have projected a line along the summit surface of Mt. Langley to that of the dome which now includes Mts. Pickering and Newcomb, and the spur south of Crabtree Valley. According to Dr. Matthes, the valley floor between these two ridges was lowered a thousand feet during the Eocene, in forming the Cirque erosional plateau. Using this as a base, we projected a line to the summits of Mt. Langley and the Pickering Dome and found that it coincided with sloping shoulders on the west side of Mt. Langley and the east side of Mt. Pickering at the 13,000 foot contour. By extending this line further to the east, we also found that it swung around the broad south shoulder of Mt. Langley and finally along the summit surface of Cirque Peak.

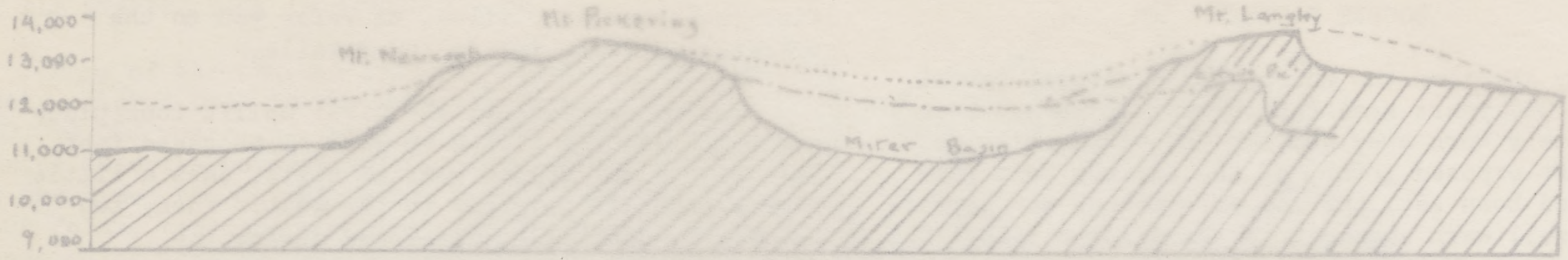
THE KINGS KERN DIVIDE
surrounding the
THE LARGEST GLACIAL AMPHITHEATER IN THE SIERRA

Standing here at the upper end of the Bighorn Plateau we can look back at the deeply serrated Kings Kern Divide and the great concave basin that rises gradually to its crest. When we view the many glacial cirques and amphitheaters as they merge and coalesce into this broad basin, we can readily understand why it has been called the "largest glacial amphitheater in the Sierra."

At first, the Basin looks merely big, broad and irregularly undulating. Then as we study the pattern of the streams, we note that they radiate like the spokes of a wheel---from the west, the creeks join forces from Jordan, Genevra, Harrison Pass, both sides of Ericsson and out of Lake South America to enter the Kern River at the left corner of the picture. A strong but nameless tributary comes directly from the north. Gathering from the east are the streams that surround Diamond Mesa and join with Tyndall Creek.

But of even greater interest is the alignment of the mountains and ridges---reminding us that they are but rudimentary remnants of the ancient Jurassic folded hills and valleys. The most prominent is the ridge suggested by the straight line formed by Junction Peak, Diamond Mesa and point 12,350 (just to our right, out of the picture.) A similar alignment can be seen in the ridge formed by Mt. Stanford (center) and its long shoulder extending to the south. A third remnant-fold is that suggested by the long ridge (at the left edge of the pictures) which rises to culminate in Crags Ericsson. The streams that flow between them are following channel courses laid out (but now lowered considerably) some 160,000,000 years ago.

Photograph by H. Stewart Kimball



Mts. Young and Hitchcock, and [illegible] and Newcomb. The pattern is different on the western side of the basin. Here the westward slope of the Sierra block did not favor the flow [illegible] toward the Kern. [illegible] flowed in a south[illegible] later. Thus, the [illegible] canyon betwee[illegible] Red Spur Creek [illegible] trenched its [illegible] finally, the [illegible] Western Divide [illegible] valleys and [illegible] tendency toward [illegible]

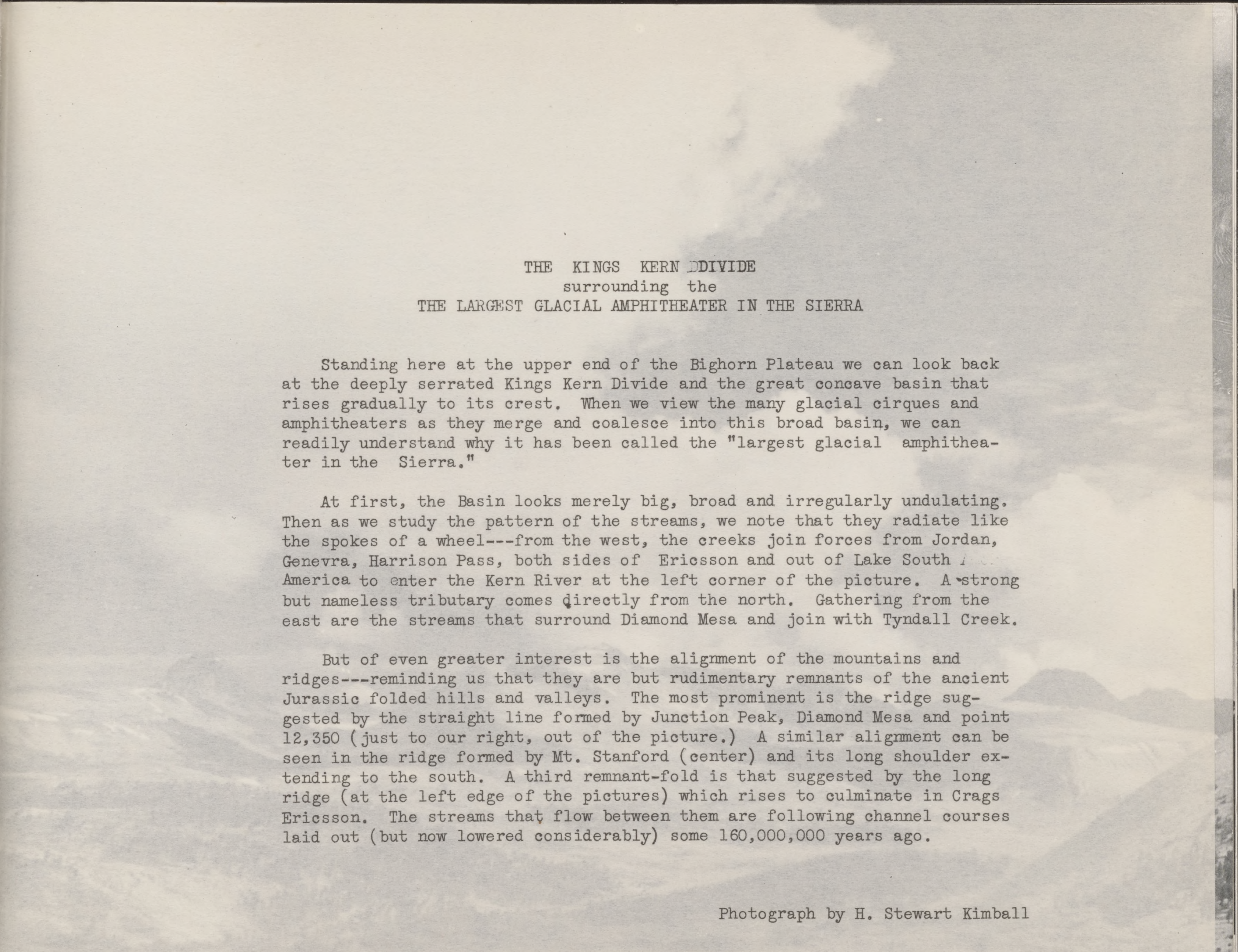
2. The other outstanding feature, the terraced plateaus, is one [illegible] alike with wonder[illegible] studied them and [illegible] conclusions.

During the [illegible] were relatively [illegible] time went on, [illegible] ing the stream[illegible] basin floor. Thus, the [illegible] and the first and highest of the [illegible]

was formed. Dr. Matthes called this plateau the Cirque Peak erosional surface, because it is so well preserved in the region around Mt. Langley and [illegible] the broad [illegible] Peak.

In the above diagram [illegible] simplified and with elevations [illegible] we have drawn a cross-section [illegible] through the pertinent mountains, with the present contours in a [illegible] ning of the Ter[illegible] shown the [illegible] dots and dashes.

[illegible] profile, we have [illegible] surface of Mt. [illegible] now includes Mts. Pickering and Newcomb, and the spur south of [illegible] to Dr. Matthes, the [illegible] ridges was lowered [illegible] Eocene, in forming the [illegible] this as a base, [illegible] of Mt. Langley [illegible] that it coincided [illegible] on the west side of Mt. [illegible] Pickering at the [illegible] contour. By extending this line further [illegible] found that it swung around the broad south shoulder of Mt. Langley and finally along the summit surface of Cirque Peak.



THE KINGS KERN DIVIDE
surrounding the
THE LARGEST GLACIAL AMPHITHEATER IN THE SIERRA

Standing here at the upper end of the Bighorn Plateau we can look back at the deeply serrated Kings Kern Divide and the great concave basin that rises gradually to its crest. When we view the many glacial cirques and amphitheaters as they merge and coalesce into this broad basin, we can readily understand why it has been called the "largest glacial amphitheater in the Sierra."

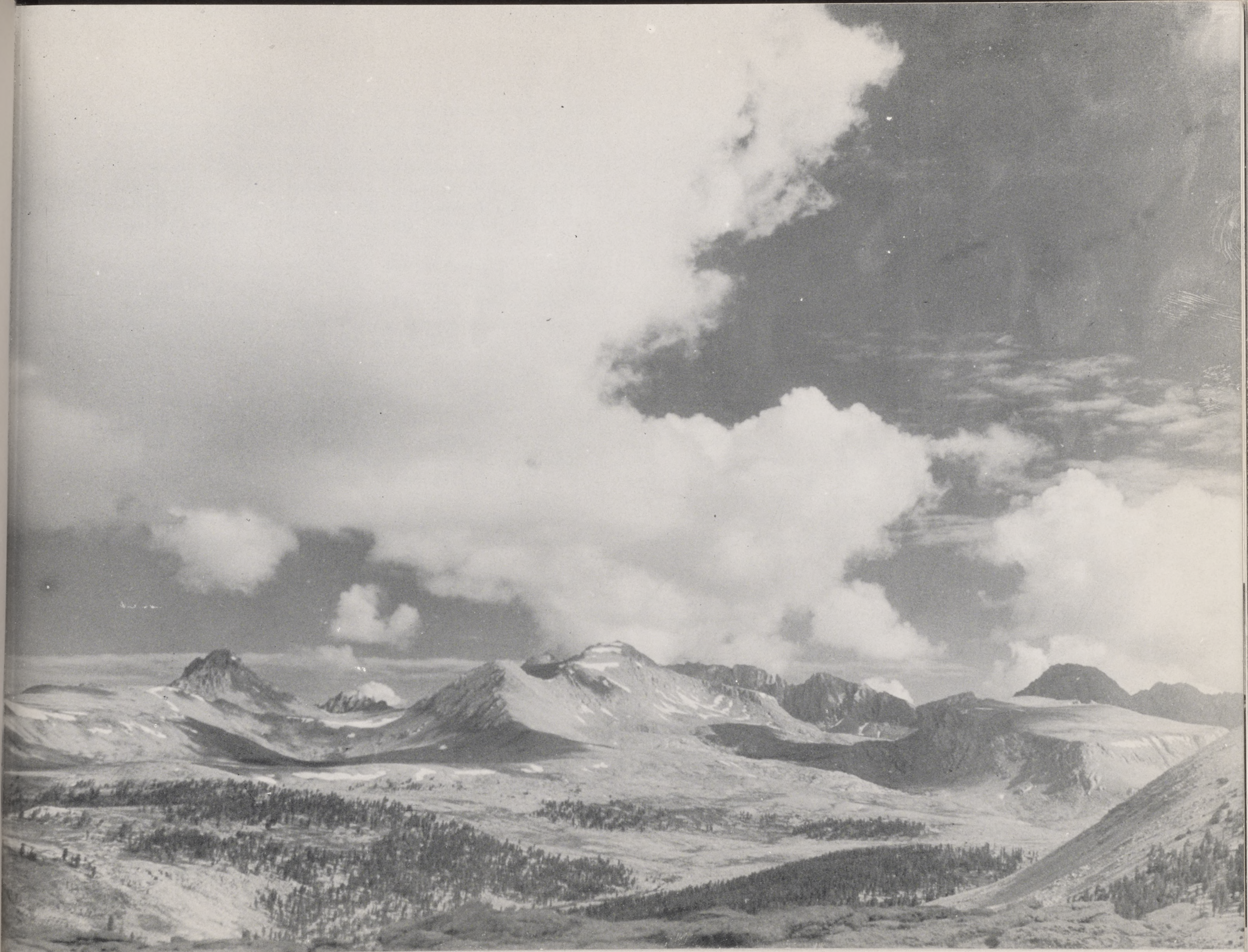
At first, the Basin looks merely big, broad and irregularly undulating. Then as we study the pattern of the streams, we note that they radiate like the spokes of a wheel---from the west, the creeks join forces from Jordan, Genevra, Harrison Pass, both sides of Ericsson and out of Lake South America to enter the Kern River at the left corner of the picture. A strong but nameless tributary comes directly from the north. Gathering from the east are the streams that surround Diamond Mesa and join with Tyndall Creek.

But of even greater interest is the alignment of the mountains and ridges---reminding us that they are but rudimentary remnants of the ancient Jurassic folded hills and valleys. The most prominent is the ridge suggested by the straight line formed by Junction Peak, Diamond Mesa and point 12,350 (just to our right, out of the picture.) A similar alignment can be seen in the ridge formed by Mt. Stanford (center) and its long shoulder extending to the south. A third remnant-fold is that suggested by the long ridge (at the left edge of the pictures) which rises to culminate in Crags Ericsson. The streams that flow between them are following channel courses laid out (but now lowered considerably) some 160,000,000 years ago.

Photograph by H. Stewart Kimball

Kern Divide

H. Stewart Kimball



ings'- Kern Divide

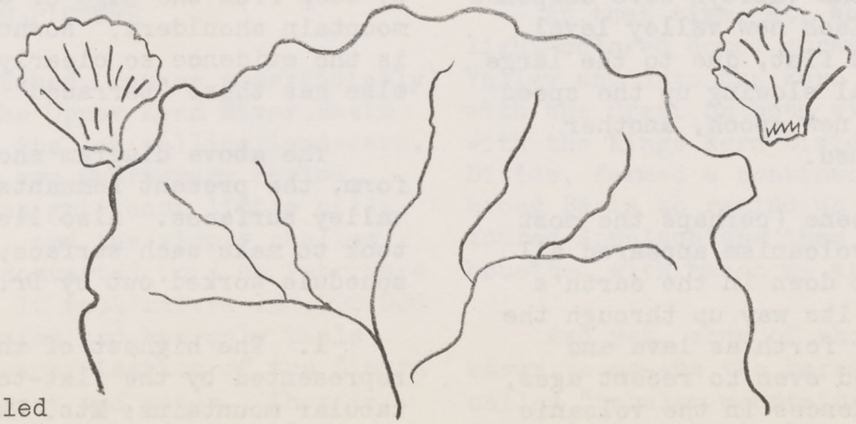
H. Stewart Kimball

Farther north, this highest (Cirque Peak plateau) valley surface is not so apparent, as it has since been deeply dissected by the erosion of the lateral streams. However, it can be found where neither erosion nor glaciation has affected it, along the summits and shoulders of Mt. Hitchcock, Mt. Hale and the western shoulder of Mt. Barnard.

Still farther north, in the northerly portion of the basin, the pattern has been changed by the influence of the Kings Kern Divide. Here, evidence of three ancient folds can still be seen in: (1) Diamond Meda, (2) the south shoulder of Mt. Stanford and (3) the spur running south from Mt. Ericsson. But since the Divide was higher than the folds, the streams, emanating from it, broke through the intervening hills as they accumulated volume from the east and west laterals. Jointly they converged, like spokes of a wheel into the central channel to build up the Kern River.

In appearance, this northerly portion of the Upper Basin might have been likened to a giant scalloped pecten shell, Even to this day, when viewed from the air, it gives one that impression.

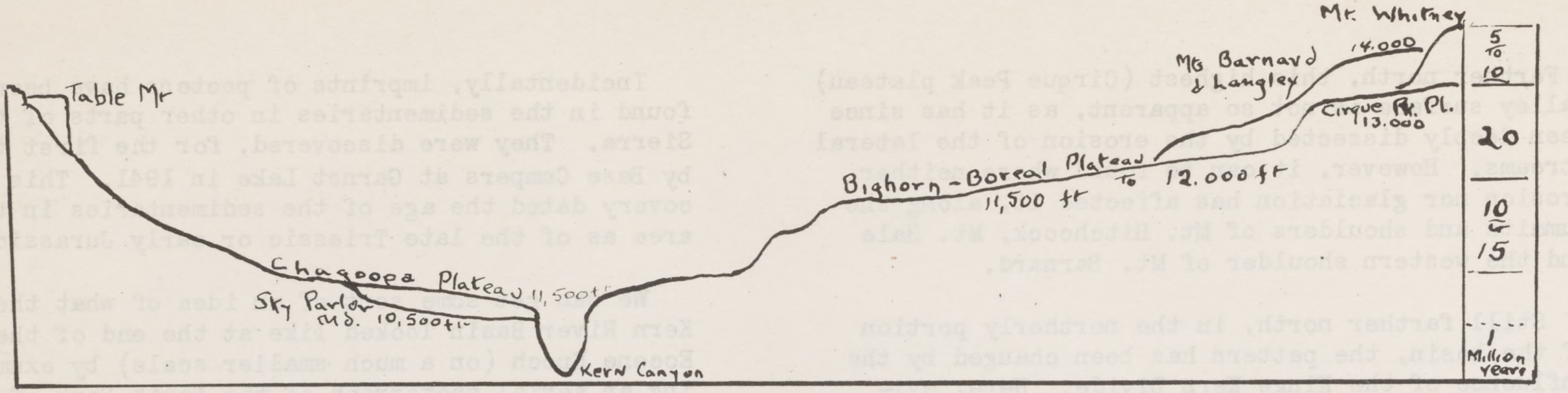
One might well imagine that a great concave shell had been dropped there and left its impression on the molten granite, its undulating edge resting against the Crests and its radial ribs, each filled with a rushing stream.



Incidentally, imprints of pectens have been found in the sedimentaries in other parts of the Sierra. They were discovered, for the first time, by Base Campers at Garnet Lake in 1941. This discovery dated the age of the sedimentaries in that area as of the late Triassic or early Jurassic.

We can get some sort of an idea of what the Kern River Basin looked like at the end of the Eocene Epoch (on a much smaller scale) by examining an aerial photograph of the North Fork of the San Joaquin River in its present barren state.

Viewed from the air, it would look like a long, glistening white basin (the granite in this region is light in color). It was broad and shallow, and concaved so slightly toward the center, that it would not have been noticeable from above. Nor would the low, flat flutings of the ancient hills be apparent from above. Only the early suggestions of stream-bed pattern could be discerned and perhaps the only landform to stand out would be the hulking mass of Mt. Whitney's great dome. Closer scrutiny would show that the broad basin was tilted up slightly toward the east, with the Sierra Crest the highest part of the basin. This Crest and the two Divides which encircled the flat valley then appeared a gently rolling row of hills--and in strange contrast to the ragged silhouette we all know so well now. All of the streams, even the Kern River then seemed to meander about in an aimless pattern.



Cross section of "terraced" plateaus in Kern Basin. Heights in thousand feet; and the time it took to form each, in million years.

PERIOD OF CATACLYSMS

The Eocene Epoch was followed by the Oligocene and then the Miocene and the Pliocene, in all about 50,000,000 years. Each epoch brought fresh violence and added height to the Sierra Crest. And each convulsive mountain-raising period was followed by a long interval of relative quiescence, during which the new mountain structures were leveled down and rounded off, and the valleys were deepened to new and lower levels. Each new valley level, however, remained broad and flat, due to the large amount of erosional material slowing up the speed of the streams. With each new epoch, another "terraced" plateau was formed.

It was during the Miocene (perhaps the most violent of them all) that volcanism appeared all along the range. From deep down in the earth's crust, molten magma forced its way up through the weakened structures to pour forth as lava and cinders. This has continued even to recent ages, and we see its present evidences in the volcanic cones, basaltic cliffs and hot springs of the lower Kern.

With the Pliocene and the end of the Tertiary, the Sierra was upraised some 6000 feet to approximately its present height. That was only 1,000,000 years ago and our recent Pleistocene Great Ice Age was then in the making.

Each of these successive uplifts left behind a tell-tale marker, a bench level, where its stream-bed had been eroded and levelled off in the basic rock. These are the "terraced" plateaus we now see on both sides of the valley, rising step by step from the edge of the gorge to the highest mountain shoulders. Nowhere else in the Sierra is the evidence so clearly preserved. No place else has these "terraced" plateaus.

The above diagram shows us, in a simplified form, the present remnants of the old erosional valley surfaces. Also listed are the years it took to make each surface, according to the time-schedule worked out by Dr. Francois E. Matthes.

1. The highest of the erosional surfaces is represented by the flat-topped surfaces of the tabular mountains: Mts. Whitney, Langley, Barnard, Table, Milestone Mesa, and other smaller summits, such as points 13,560 and 13,300 in the Great

Western Divide. These are the remnants of the contact plain between the old sedimentaries and the granite batholith. They were left bare during the Eocene and have changed but little since.

2. The next valley floor (about 1,000 feet lower) eroded some 45,000,000 years ago, and is represented by Cirque Pk., shoulders of Langley and Barnard and the summits of Hitchcock, Hale, Newcomb, etc.

3. The next level (at about 11,500 ft.) was formed about 35,000,000 years ago and is represented by Boreal Plateau, Guyot Flats, Bighorn Plateau and Sandy Meadows.

4. The lowest was formed some 10,000,000 years ago at the 10,000 ft. level and is represented by Chagoopa Plateau and Sky Parlor Meadow.

The deep trench at the bottom of the diagram represents the Kern River Canyon, carved out of the last valley floor by stream erosion and glacial action, mostly during the 1,000,000 years of the Great Ice Age.

ICE ENTERS THE PICTURE

We have so far sketched (rather superficially) the transformation of the Upper Kern River Basin from the Jurassic, with its low rolling landscape, to the beginning of our own Quartenary Period, during which time the insignificant little hills became mighty mountains, and the simple shallow system of valleys were converted into an intricate pattern of watersheds. It took nature 160,000,000 years to make these changes and her only tools (in the reduction and beautification of the Sierra block) had been wind, frost and water. Then to speed up her work, she added the destructive forces of ice.

To fully appreciate how much she has accomplished during this last million years, it might be well to visualize how the Basin appeared before the glaciers took over. By comparing this pre-glacial appearance with the present, we can evaluate the effectiveness of the Pleistocene glaciers.

At a casual glance, and from a great height, the Basin would have looked very much as it does today. But at close range, we would have noted marked differences--and some of them most revealing. They should not all be construed as destructive, for many of her efforts were constructive--constructive of the spectacular scenery we now treasure so enthusiastically.

In preglacial times, all of the valleys whose geological development we have been following, were V-shaped. But the bottoms of the V's were filled with silt, rocks and boulders, fallen from the valley walls. The mountains, ridges and spurs had then become mature--i.e., well weathered and smoothly rounded off, with small tributaries trickling down to furrow their sloping flanks and mark the location of future glacial cirques.

At that time, Mt. Whitney stood forth, a massive light-colored dome, sprawling out into the Owens Valley and into the Kern Basin, as well as merging with the Crest on both sides. This Crest, together with the Kings Kern Divide and the Great Western Divide, formed a continuous undulating rim for the broad Basin to remind us more of the gently contoured Appalachians than the jagged Sierran silhouette, with which we are so familiar.

And yet, some of those ancient summits are well known to us--as the barren platforms of the so-called "tabular mountains." However, their former rounded edges have since been carved off and surrounded by precipitous cliffs.

The Kern River Canyon, which today stands out as a deeply incised gash in the landscape, then would have been hard to find. It was to receive the roughest treatment from the plowshares of water and ice. For at that time, it appeared as a shallow, sinuous stream flowing down a broad, flat valley--as evidenced by the fact that the lowest bench, which we now call the Chagoopa Plateau or Erosional Surface, was then the floor of the last and preglacial valley. This same valley floor is still there as the broad, level rim of the canyon. Actually, the canyon today is 2000 feet deep in places and all of this erosion was accomplished during the recent Pleistocene Epoch.

So, let us see what happened during this Great Ice Age. It was introduced by a preglacial "pluvial period," with unprecedented deluges that scoured the mountain sides and washed the dirt into streams and rivers and then down into the San Joaquin Valley to fill it to new heights.

The rains then turned to snow and the snow to ice. The temperatures dropped and the ice remained to accumulate into long, frozen rivers that inched their way irresistibly down the valleys, pushing, shoving, and rolling the debris left behind by the deluges. Rocks were plucked from sloping hillsides. Thus the valley walls became straight and parallel, and the floors broad and deep--i.e., typically U-shaped. Obstructing buttresses were cut off and curves were made wide and sweeping.

High up against the Crest, the glaciers quarried back and undermined the mountainsides to form glacial cirques, and these in turn merged with neighboring cirques to form mighty amphitheaters. Then these in turn ate their way into the Crest and adjacent spurs to ultimately cut through and open up low passes, so that modern man and his animals might cross from one side to the other.

This is the oft-told story of glaciers in action. It is that balance in nature which we recognize as the "process of leveling down mountains as soon as they are lifted up." But this stern law of nature met conditions in the Kern that were different from elsewhere in the Sierra and consequently, the results were far from typical. This can account, at least partially, for the reason why so many of the ancient Tertiary landforms still stand out unchanged, or modified but little.

WHY TERTIARY LANDFORMS PERSIST

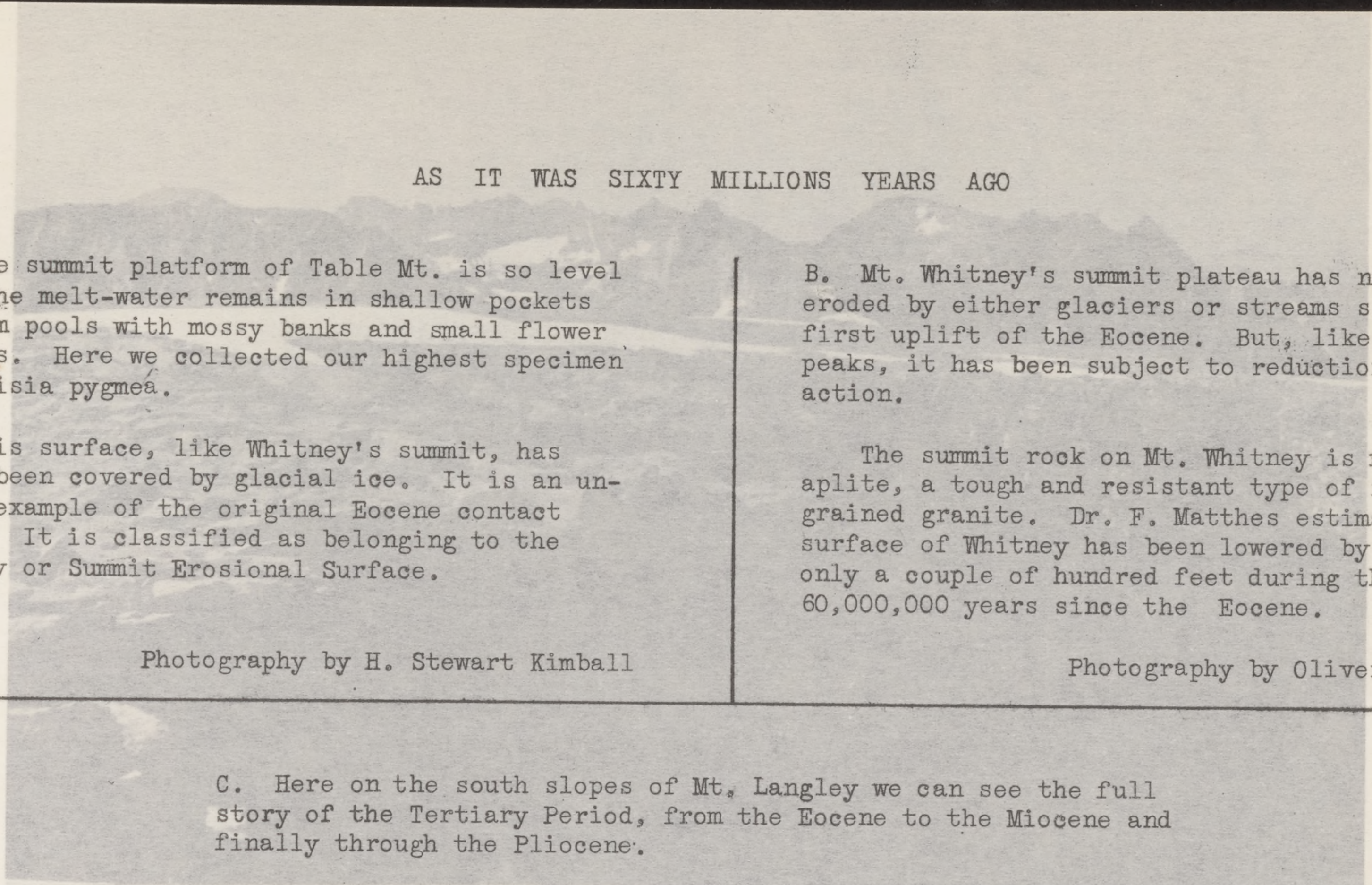
So, before considering the effects of the Pleistocene, we should review some of the unusual topographical conditions which were to play an important part in this transformation.

1. Altitude The Crest was higher here than anywhere else in the Sierra. Due to this added height, the glaciers were extremely vigorous near the Crest --and being vigorous, they carved out deep cirques and trenches which added further to their protection and preservation.

2. Three Types of Glaciers This region lies at the southerly limits of glaciation in the United States; and its latitude approaches that of the subtropics. Naturally, one would expect its glaciation to have been week. Actually, it was very strong up near the Crest, but weakened rapidly as it met warm conditions on the lower terraces.

In the Kern, there were three types of glaciers: (a) the short, vigorous glaciers that started at the Crest and died on the plateaus. These were the first to form and the last to disappear. They also were the ones that persisted through the great interglacial.

(b) the long, thick glaciers that originated on the Great Western Divide and provided most of the



AS IT WAS SIXTY MILLIONS YEARS AGO

A. The summit platform of Table Mt. is so level that the melt-water remains in shallow pockets to form pools with mossy banks and small flower gardens. Here we collected our highest specimen of Lewisia pygmea.

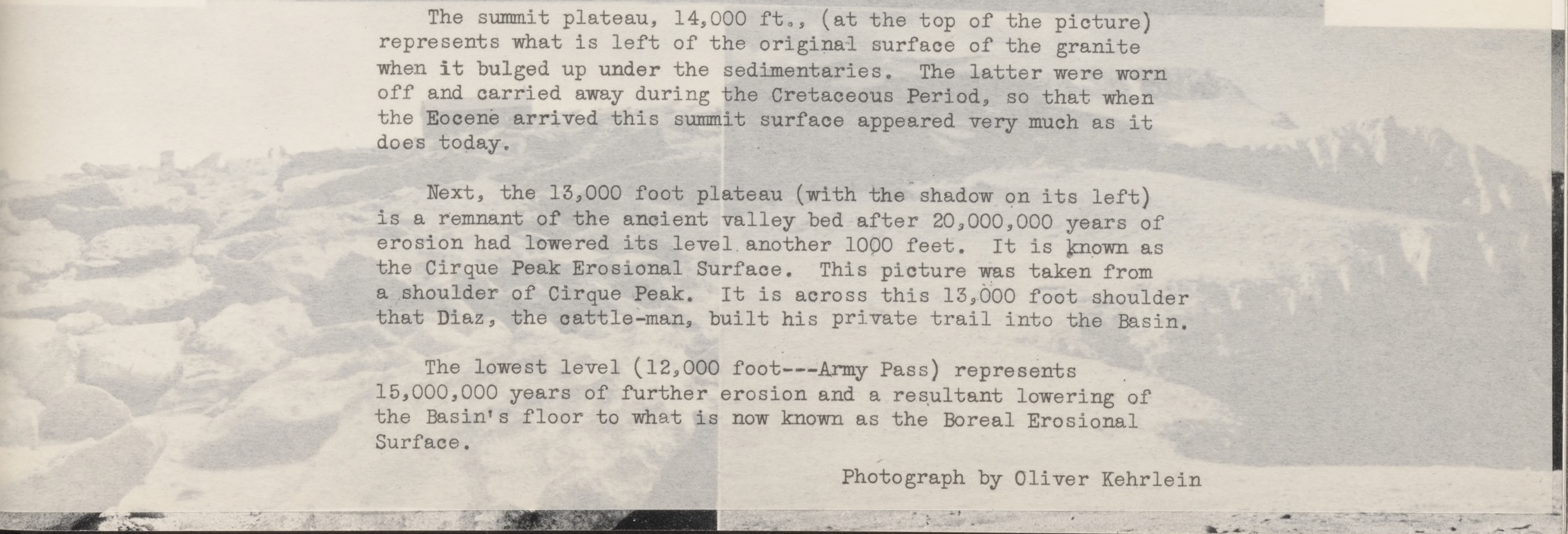
This surface, like Whitney's summit, has never been covered by glacial ice. It is an unusual example of the original Eocene contact plain. It is classified as belonging to the Whitney or Summit Erosional Surface.

Photography by H. Stewart Kimball

B. Mt. Whitney's summit plateau has not been eroded by either glaciers or streams since the first uplift of the Eocene. But, like all high peaks, it has been subject to reduction by frost action.

The summit rock on Mt. Whitney is mostly aplite, a tough and resistant type of fine-grained granite. Dr. F. Matthes estimated that surface of Whitney has been lowered by nivation only a couple of hundred feet during the 60,000,000 years since the Eocene.

Photography by Oliver Kehrlein



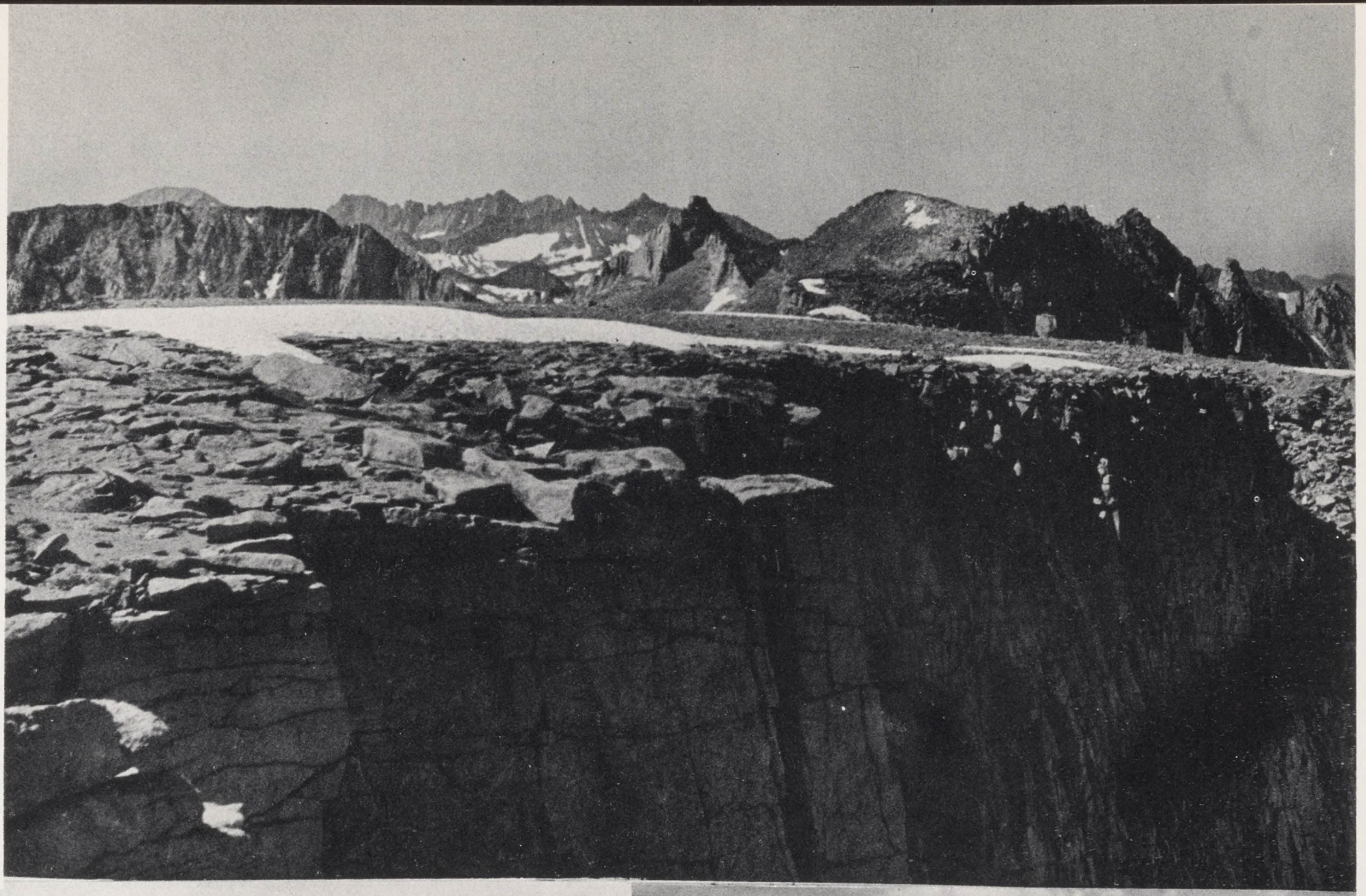
C. Here on the south slopes of Mt. Langley we can see the full story of the Tertiary Period, from the Eocene to the Miocene and finally through the Pliocene.

The summit plateau, 14,000 ft., (at the top of the picture) represents what is left of the original surface of the granite when it bulged up under the sedimentaries. The latter were worn off and carried away during the Cretaceous Period, so that when the Eocene arrived this summit surface appeared very much as it does today.

Next, the 13,000 foot plateau (with the shadow on its left) is a remnant of the ancient valley bed after 20,000,000 years of erosion had lowered its level another 1000 feet. It is known as the Cirque Peak Erosional Surface. This picture was taken from a shoulder of Cirque Peak. It is across this 13,000 foot shoulder that Diaz, the cattle-man, built his private trail into the Basin.

The lowest level (12,000 foot---Army Pass) represents 15,000,000 years of further erosion and a resultant lowering of the Basin's floor to what is now known as the Boreal Erosional Surface.

Photograph by Oliver Kehrlein



ice for the main Kern Glacier.
(c) the main trunk or Kern Glacier. During the first glacial cycle, it extended downstream 32 miles and during the second cycle, 25 miles.

3. Southern Exposure The whole Basin was wide open below the 11,000 foot contour, and exposed to the south sun. Also, being so far south, the sun was hot and the days were long. This brought warm, temperate conditions close up to the glaciers, for the major part of the year. Thus, the gap between the frigid arctic zone and the subtropical zone shrank to a very narrow belt. The gap was so narrow that we now find timber growing up to 12,000 feet, which is 500 feet above where the glaciers were being formed in some of the cirques.

Consequently, as soon as the Crest glaciers emerged from their lateral valleys, they were promptly melted by the hot sun. At high elevations, the atmosphere in the shadows was extremely low. So, as long as the ice tongues remained in the protective shadows of their lateral spurs, they retained their thickness and vigor.

4. Battle of Climates Finally, we come to the most unusual, and at the same time, the most powerful factor that was to affect the growth and wast-age of the glaciers (called glacial regimen). This was a curious combination of storms that was to blow hot on one side and cold on the other.

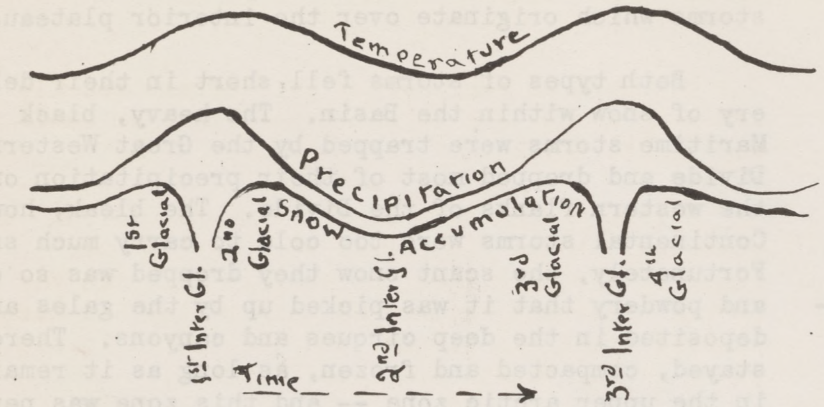
Now, it is axiomatic that the growth of a glacier depends on the amount of snow it receives, and how cold it can keep the snow. It wastes away in proportion to its exposure to heat and other desiccating factors, such as wind, rain, etc.

Also, there are two types of snow--the heavy, wet kind dumped by the warm westerly Maritime storms from the Pacific; and the cold, dry flakes driven in by the bitter, easterly Continental storms which originate over the interior plateaus.

Both types of storms fell short in their delivery of snow within the Basin. The heavy, black Maritime storms were trapped by the Great Western Divide and dropped most of their precipitation on the western flanks of the Divide. The bleak, howling Continental storms were too cold to carry much snow. Fortunately, the scant snow they dropped was so cold and powdery that it was picked up by the gales and deposited in the deep cirques and canyons. There it stayed, compacted and frozen, as long as it remained in the upper arctic zone -- and this zone was persistently cold (winter and summer) under the control of the ever-present Continentals.

Naturally, with a different type of climate (and storms) on each side of the Basin, there were two different types of glaciers. Thus, the glaciers on the west side were the heavy-producer type. They accumulated comparatively large quantities of snow from the Maritime storms and built big, strong glaciers that dug deep canyons. The Maritime storms (coming from the warm Pacific) were the first to break the long Pleistocene winter by bringing summer heats and rains. So these west side glaciers were the first to go, at the end of each glacial cycle.

The east side glaciers might be likened to a miser who hoards his meager reserves down deep in some dark dungeon. Not a flake was lost until they escaped from the shadow of the spurs and broke out into the glare of the sun on the broad expanses of the plateaus. As they started high up, they dropped rapidly and quarried deeply both in the cirques and canyons. While their downward course was a short and active one, their period of activity was a long one. Sustained by the Continental cold, these short glaciers continued to



excavate and broaden their canyons long after the cold glacial cycles had passed and the other glaciers had been melted by the warm interglacials.

ALL INTERGLACIALS WERE NOT WARM

It is a fascinating story we find in the behavior of the Kern glaciers during the climatic ups and downs of the Pleistocene Ice Age. We commonly think of the Pleistocene as having had four cold glacial cycles, with three intervening iceless "interglacial periods." But, in the Kern, we find evidences of only three glacial periods--and this makes us wonder if there might not be some connection between the unusual Continental exposure of the Basin and a little-understood Continental condition that is said to have prevailed during the long middle interglacial period.

If there is such a connection and if it does prove of value in explaining (and we think it does) the many unusual features of the Kern Basin, then it is our sincere hope that others will carry further the suggestion offered in this paper.

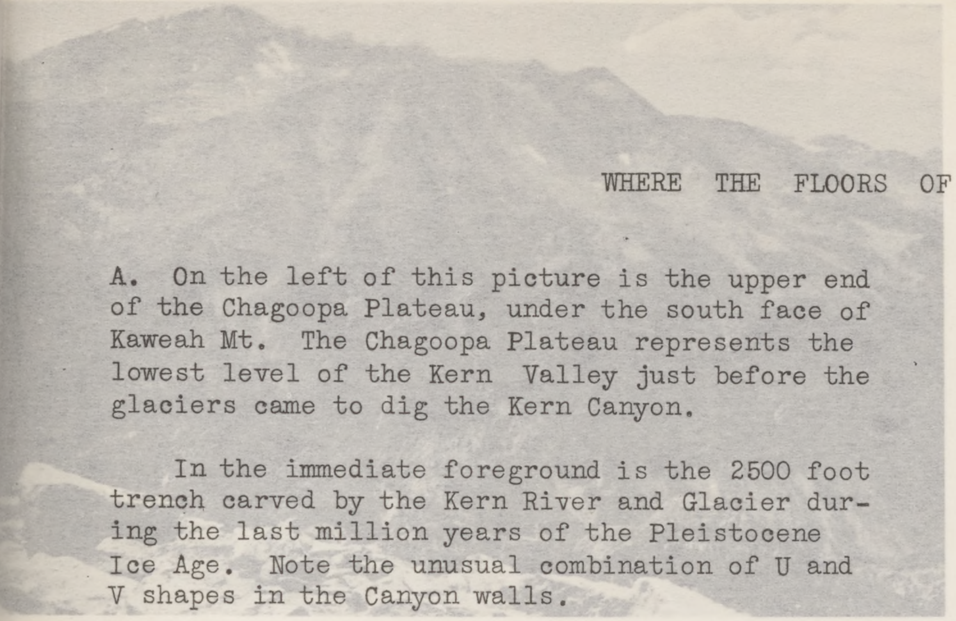
We are accepting, for the present, Sir George Simpson's double curve theory on the effect of solar radiation and temperature on precipitation and snow accumulation during the Pleistocene. We appreciate that certain phases of his theory have been questioned. But, we feel that his theory of a cold-dry Yarmouth, or middle interglacial period, is confirmed by our findings in the Kern, or at least fit in with them in a logical manner.

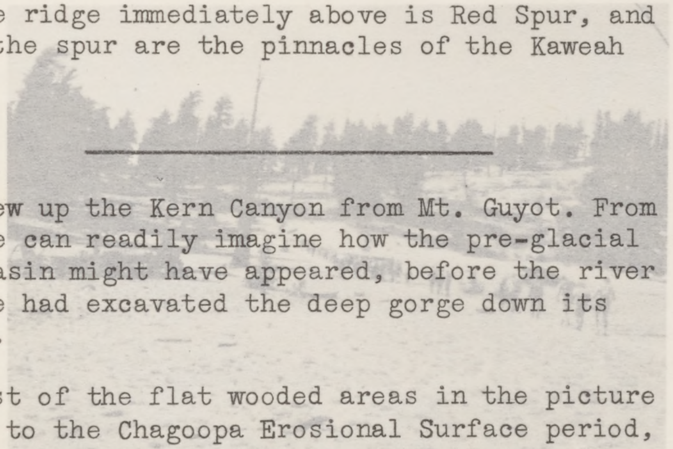
The following diagram is taken from his article which appeared in NATURE, Vol. 141, 1938 P. 597. In general, this diagram shows how precipitation increases with the rise in temperature and drops when the temperature drops. By following the lower line (with four peaks) you will note that the snow accumulates in proportion to the precipitation, until the temperatures rise so high that the climate gets too hot and the ice melts.

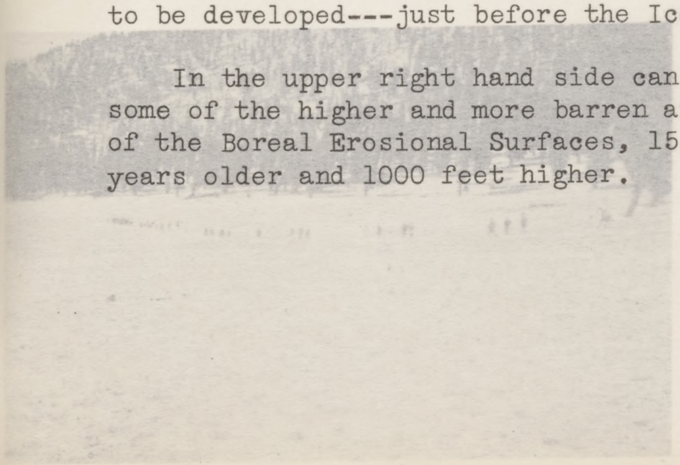
Then, as both temperatures and cloudiness reach a maximum, the overcast cuts off the solar radiation and the earth returns to a cooler state. The cycle is completed and ready to start over again. But, two things happened on the way down. As the climate became cool enough for the precipitation to freeze, then snow again began to accumulate. This would only happen if the prevailing storms were continental.

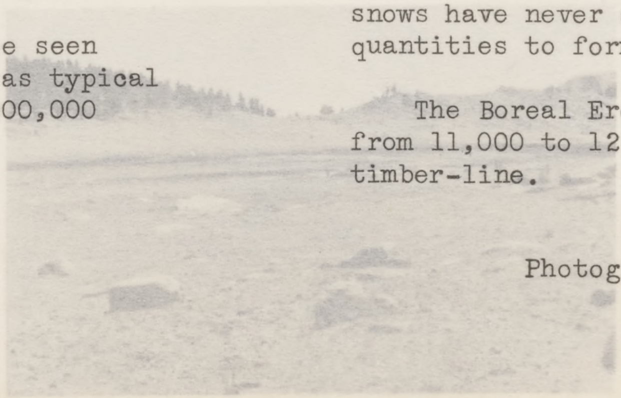
Digressing for a moment, we point out that our Crest glaciers in the Kern would have profited handsomely and accumulated a goodly blanket during the second cold, dry glacial cycle.

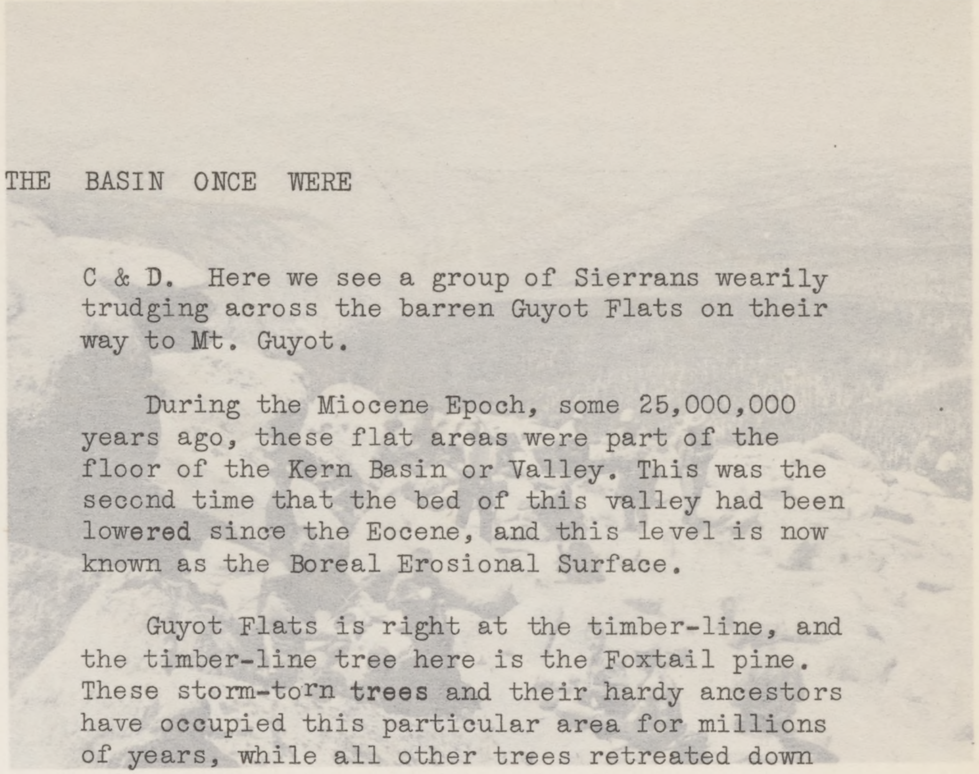
Simpson goes on to point out that during this second glacial cycle, the temperature was dropping and precipitation was decreasing and that the natural result of this cold, dry spell would be an absence of snowfall--or an ice-less interglacial period. Most glaciers would receive only a minimum of snow. If their elevation were low or they were subject to Maritime storms, this modicum of

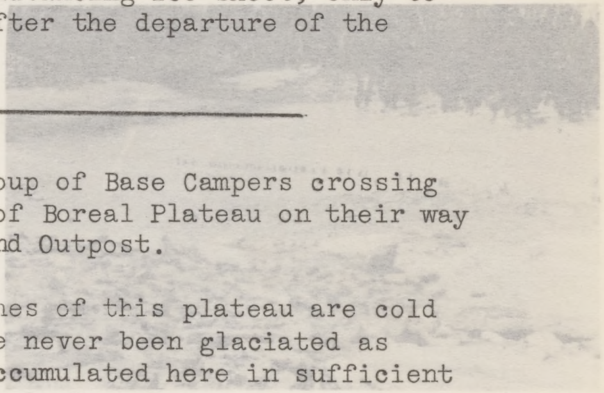












WHERE THE FLOORS OF THE BASIN ONCE WERE

A. On the left of this picture is the upper end of the Chagoopa Plateau, under the south face of Kaweah Mt. The Chagoopa Plateau represents the lowest level of the Kern Valley just before the glaciers came to dig the Kern Canyon.

In the immediate foreground is the 2500 foot trench carved by the Kern River and Glacier during the last million years of the Pleistocene Ice Age. Note the unusual combination of U and V shapes in the Canyon walls.

The ridge immediately above is Red Spur, and above the spur are the pinnacles of the Kaweah Range.

B. View up the Kern Canyon from Mt. Guyot. From here we can readily imagine how the pre-glacial Kern Basin might have appeared, before the river and ice had excavated the deep gorge down its center.

Most of the flat wooded areas in the picture belong to the Chagoopa Erosional Surface period, the fourth and last of the broad valley-basins to be developed---just before the Ice Age.

In the upper right hand side can be seen some of the higher and more barren areas typical of the Boreal Erosional Surfaces, 15,000,000 years older and 1000 feet higher.

C & D. Here we see a group of Sierrans wearily trudging across the barren Guyot Flats on their way to Mt. Guyot.

During the Miocene Epoch, some 25,000,000 years ago, these flat areas were part of the floor of the Kern Basin or Valley. This was the second time that the bed of this valley had been lowered since the Eocene, and this level is now known as the Boreal Erosional Surface.

Guyot Flats is right at the timber-line, and the timber-line tree here is the Foxtail pine. These storm-torn trees and their hardy ancestors have occupied this particular area for millions of years, while all other trees retreated down valley before the advancing ice sheet, only to climb back again after the departure of the glaciers.

E & F. Another group of Base Campers crossing the barren wastes of Boreal Plateau on their way to Siberian Pass and Outpost.

The upper reaches of this plateau are cold and bleak, and have never been glaciated as snows have never accumulated here in sufficient quantities to form glaciers.

The Boreal Erosional Surfaces are located from 11,000 to 12,000 feet and are mostly above timber-line.

Photographs by O. Kehrlein

[illegible] be-
havior of the Kern glaciers during the [illegible] ups and downs of the Pleistocene Ice Age. We commonly think of the Pleistocene as having had four cold glacial cycles, with three intervening [illegible] In the Kern, [illegible] s-- and this makes us [illegible] some connection between the unusual Continental [illegible] Basin and [illegible] Food Cons[illegible] pe- [illegible] period.

If there is such a connection and if it does p[illegible] it does) [illegible] then it is our sincere hope that others [illegible] further the suggestion offered in this paper.

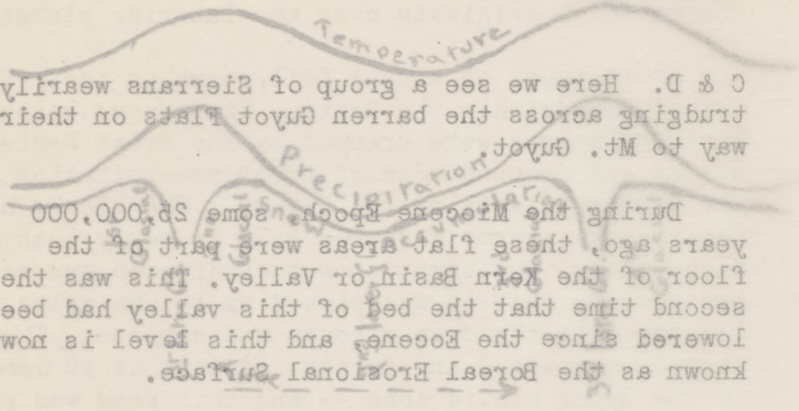
We a[illegible]ent, Sir George Simpson's double curve theory on the effect of solar radiation and temperature on precipitation and snow accumulation during the Pleistocene. We appreciate that certain phases of his theory have been [illegible] a col[illegible] is con[illegible] least [illegible]

The following diagram is taken from his article which [illegible] NATURE [illegible] In general [illegible] diagram [illegible] precipitation increases [illegible] the rise in temperature and drops when the temperature drops. [illegible] the lower line (with four peaks) you will note that the snow accumulates in proportion to the precipitation [illegible] that the [illegible]

Then, as both temperatures and cloudiness reach a maximum, the overcast cuts off the solar radiation and the earth returns to a cooler state. The c[illegible] again. As the [illegible] tation [illegible] late. This would only happen if the prevailing storms were continental.

[illegible] our Cre[illegible] handsomely [illegible] the second cold, dry glacial cycle.

[illegible] second gl[illegible] and precipitation was [illegible] natural result of this cold, dry spell would be an absence of snowfall--or an ice-less interglacial period. Most glaciers would receive only a minimum of snow. If their elevation were low or they were subject to Maritime storms, this modicum of



snow would not last. So they were starved during the long interglacial period which lasted some 300,000 years. But those glaciers (similar to our Crest glaciers) that were higher in elevation and under the influence of the Continental storms, would have carried on as active glaciers straight through from the second glacial cycle to the third, including that middle interglacial -- or a full 500,000 years of activity.

That can account both for the lack of evidence for four cycles and for the extremely heavy glacial quarrying by the small glaciers near the Crest. It will also explain why the foxtail pine has disappeared from the northern Sierra as we will see later on.

HOW THICK WAS THE ICE?

We are able to compute the thickness of the ice and compare it with other glaciers in the Sierra, by measuring the difference between the ice line and the floors of the cirques and canyons. Whereas the thickness of glaciers in the northern Sierra has been estimated at around 2,000 feet, here in the Kern Basin the glaciers contained from 400 to 600 feet. Thus Dr. Matthes figured the ice in the two branches of Whitney Glacier at 500 and 600 feet in depth (and where they joined, nearly 1,200 feet). We found the ice line 340 ft. above Tulainyo Lake (the cirque floor for Wright Glacier). To this should be added the depth of the lake, but this was not ascertained. In the Wright Lakes Basin, we found the ice line 500 feet above the valley floor, and in the upper basin of Tyndall Creek, the ice line can be traced on the surrounding walls (like a highwater mark) 500 ft. above the base. Dr. Matthes also points out that by following the gradients of the various lateral moraines and the different ice lines for the glaciers, he could determine the fact that the ice accumulated to approximately the same depth during each of the glacial cycles. By this means, he determined that the Crest glaciers never filled their cirques and canyons more than halfway.

However, the glaciers on the west side were more typical of the northern Sierra than the Kern. There we find evidences (as in the Five Lakes Basins) of a thickness of 700 ft. Also, we note that the Big Arroyo Glacier overflowed its canyon on to Sky Parlor Meadow and left a moraine (to impound Moraine Lake) 1000 ft. above, and also left a series of moraines on Chagoopa Plateau 1500 ft. above the canyon.

The contrast is significant: the west side glaciers, as typified by the one in the Big Arroyo, accumulated from 1000 to 1500 feet of ice, over-flowed their banks and were 10 to 15 miles long. On the east side, the glacial ice rarely exceeded 500 feet, barely reached the halfway mark in the cirques and canyons and extended for barely 5 miles. On the west, the glaciers concentrated on excavating deep canyons that reached to the Kern Trunk Glacier. On the other hand, the Crest group of glaciers left the most spectacular evidences of their efforts in their magnificent amphitheaters and high-walled cirques, high up--and nothing lower down, excepting lop-sided short canyons.

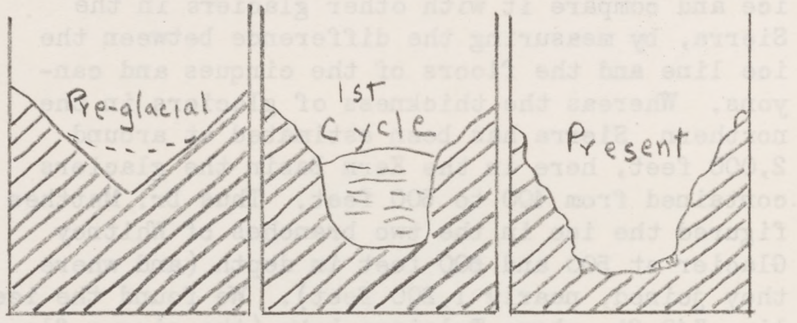
EVEN THE LAKES ARE DIFFERENT

Likewise, the lakes on each side of the Basin differ: those on the west side are lower down, below timberline and usually encircled by morainal mounds; such as Little Claire, Big Five and Little Five Lakes--all famous for their evergreen shorelines and distant views. We would like to include those truly spectacular lakes: The Columbine Trio, Hamilton Lakes and Cliff Lake--but they are just over the Divide and were formed by the heavy snows on the west flank.

The east side is dotted with innumerable high alpine lakes, few of which are below the tree line. Practically all of them have been formed by the glaciers scouring out deep rocky basins; only a few are dammed by moraines and rocky shoulders. Many of them are colorful gems set off by towering walls and amphitheaters. To suggest a few, we start with the Mitre Basin and its five alcoves, each containing an attractive lake with a descriptive name: Erin, for its light green color; Primrose, for its necklace of wildflowers; Sky Blue Lake and Gentian Lake for their deep shades of blue; and Iridescent for its shimmering reflection of Mt. LeConte's colorful rocks. Then, there is the delicately tinted chain of lakes in Crabtree Valley, with its uniquely tinted Batik Lake and that long, spectacular south wall. North of there, are Boreal Lake, Wales and Wallace Lakes and the groups of Wright Lakes, each with a startling background of sheer walls and pinnacled peaks. Tulainyo Lake is not only the highest peak in the country, but by its sheer austereness, its eerie surroundings and its everlasting floating icebergs, it stands apart and is truly unique.

On the west side, visitors usually camp on the shores of the beautiful wooded lakes. They seem warmer and more hospitable. We wonder if they reflect the warmth of the Pacific, whence come their originating storms. On the east side, one rarely camps by the lakes as they are rockbound, bleak and forbidding. Their attraction lies in their arctic austerity--truly reminiscent of the boreal Continental blasts that gave them birth.

Likewise, the peaks reflect these two different types of climates. In the Great Western Divide, all of the mountains (excepting Table Mt.) are pyramidal in shape. The V-shaped canyons and diagonally sloping mountain sides are typical of the water erosion and humid weathering prevalent in a Maritime climate. In such a location it is difficult to figure how much of the erosion was done by glaciers and how much by the heavy downpours. Our considered guess would be that a greater percentage of the erosion was accomplished by water rather than ice. This is evidenced by the shape of the valleys coming off the Great Western Divide. The bottom of each valley is glaciated and typically U-shaped--but for only a short distance up the walls. These fall back diagonally to the summit. Unquestionably, the flaring upper halves of these valleys stood out above the ice and were exposed to continuous wet storms. However, if the ice action had predominated, the walls would have been undermined and cut back until they had become vertical and parallel.



Thus, in the Great Western Divide we find such perfect examples of the pyramidal type of mountain as Mt. Jordan with its three additional small pyramids for summits: Thunder Mt., which, like the camel, has two sharp little pyramids at its top; Milestone Mt., whose receding pinnacle culminates in a sharp needle; and Triple Divide Peak, whose faces make three perfect isosceles triangles, each shedding water into a different watershed.

On the east side of the Basin, the topography is completely different. The mountains along the Crest, instead of being neat and symmetrical, are lop-sided and humpbacked. The valleys also are asymmetrical and pushed out of shape. All of this asymmetry is due to the tendency of glaciers to keep out of the sun and hug the shade. Consequently they do their best quarrying on the north faces of the mountains and ridges, cutting them off sharply on that side.

But on the south and west sides they are different. All along the Crest, the mountains retain at least some vestige of the old Eocene contact plain as part of their summit. With few exceptions all of these flat-topped summits slope off gradually to the south and west, while their north and east faces drop off abruptly in vertical cliffs. Many of these cliffs are 2000 and 3000 ft. high and form the towering headwalls of glacial cirques. But nowhere has the glacial ice over-run the summit plateaus of these peaks.

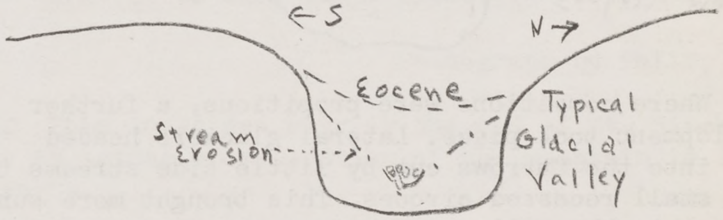
The north and east faces were formed by the small but persistent little glaciers (working overtime during the Yarmouth interglacial) quarrying back into the mountainsides, undermining them at the base so that great slabs fell away to leave standing sheer vertical cliffs.

The Continental storms deposited very little snow on the summit platforms and what little was left was promptly blown off by the gales. So, no streams nor stream-beds were ever formed high up on the mountains. And very little water trickled down its sides to form long, furrows and gather snow. Hence, there were no glaciers higher up.

So, the only erosion occurring on the south and west flanks above the glacier level, was due to frost and weathering. Here, the frost slowly broke the granite into coarse sand and pebbles, rounding off and maturing a landscape that was already well rounded. We can get a comparative idea of how slowly this frost action (nivation) works from the studies made by Dr. Matthes on Mt. Whitney and in the Yosemite. There he determined that it took from 60,000 to 80,000 years for frost to lower the surface one foot.

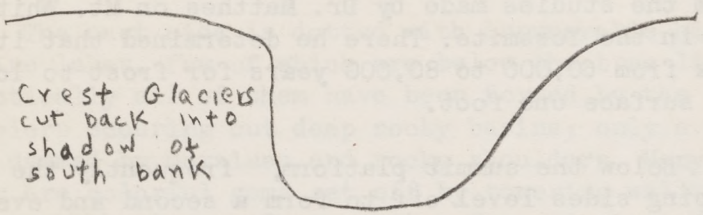
Below the summit platform, frequently the sloping sides level off to form a second and even a third plateau--the old, erosional surfaces. Mt. Langley shows all three plateaus very clearly; only two can be seen on Whitney and two on Barnard. On these, the third and lowest level is known as the Big Horn Plateau.

We will be able to understand why valleys lost their symmetry, by following one through the various stages of its development.

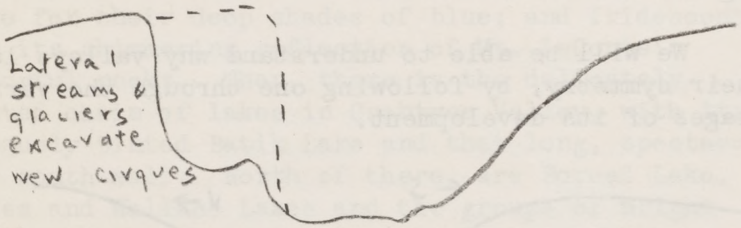


The original Eocene valley was shallow and its banks low and rounded. During the subsequent 60,000,000 years, the streams cut V-shaped channels as indicated in the diagram above with dots and dashes. Under ordinary conditions, the glaciers would have quarried this channel down symmetrically to form the characteristic U-shaped glacial canyon.

But conditions on the east side of the Kern were out of the ordinary. The valleys ran east and west, with deep shade on the south bank. The altitude being southerly, the solar radiation was hot. Hence, the glaciers thrived best nearest their south walls. There they carved out vertical walls and left the other bank sloping. A perfect example of this



type can be seen in the Crabtree Valley, with its bizarre sculptured cliffs on the south and the sloping sides of Mt. Hitchcock on the north.



Where conditions were propitious, a further development took place. Lateral glaciers headed back into the furrows cut by little side streams to form small recessed cirques. This brought more sunlight into the valley and caused the glacier either to shift farther to the south or start a new channel on the south side. A perfect example of such a scalloped arrangement can be seen in Wallace Creek Valley with its twin streambeds and four alcoved cirques, each with one or more lakes. The south slopes of Mt. Barnard make up the north or right bank.

All of these east side valleys were short. As soon as the glaciers emerged into the glaring sunlight on the plateaus, they immediately began to melt and to deposit their loads of rocks and silt. These formed morainal mounds which, in turn, developed into dams and behind these lakes collected. As time went on, the lakes filled with silt, and vegetation followed to give us the lush meadows we find at the mouth of each of these valleys.

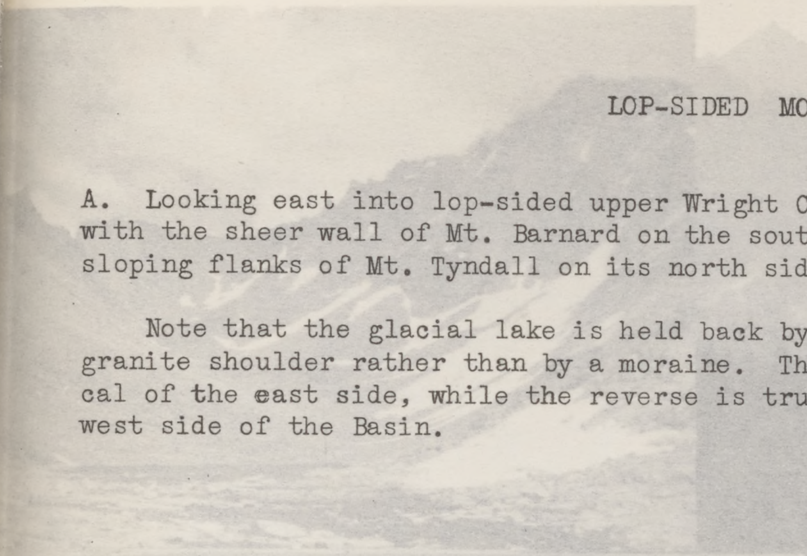
We can follow this whole cycle in Crabtree Meadows. On both sides stand the long parallel ridges of boulders--the lateral moraines. Between them, swinging in semi-circles, are the remains of the terminal moraines, breached here and there where the stream has broken through at various times. Upstream we find small lakes impounded by low moraines. Farther down we slog through a swamp filled with sedges and grasses. And, finally, we come to the grassy meadows below, surrounded by willows and young lodgepole pines. Meadows are deficient both in quantity and quality on the east side as compared with numerous lush grass-lands on the west side. This is to be expected when we realize the type and number of storms that visited each area.

Shortly after leaving their plateau meadows, the streams cascade down rocky V-shaped troughs into the Kern Canyon. These side streams have cut back their channels as fast as the Kern lowered its floor. Consequently, there are no cliffs and no spectacular waterfalls.

The Kern Canyon is a curious contradiction. It appears U-shaped and is always so described. Actually, it is V-shaped. Its real bottom is V-shaped, as the result of recent stream action. But it has been filled in with a false flooring of stream-borne boulders and debris fallen from the walls. The upper portion of the walls flares back diagonally as a result of longtime weathering.

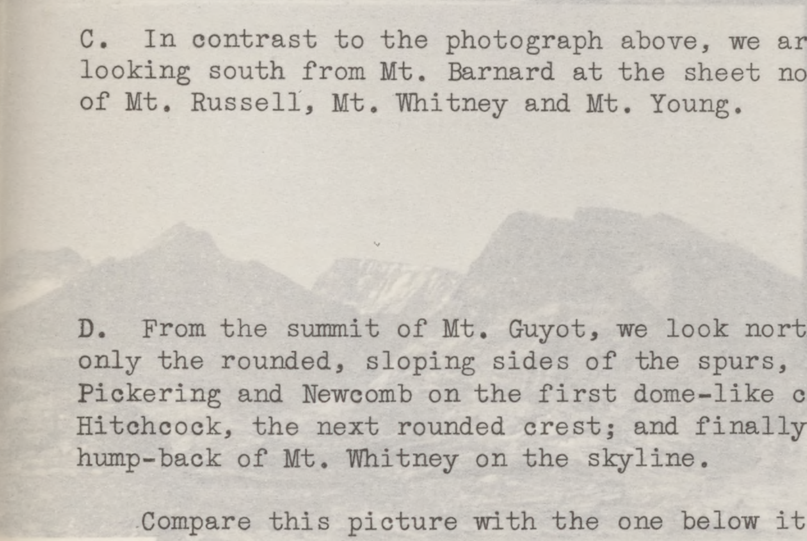
Stream action and glacial quarrying have alternated all through ice ages and the formation of the canyon, but the major destruction was that

LOP-SIDED MOUNTAINS, VALLEYS AND SPURS

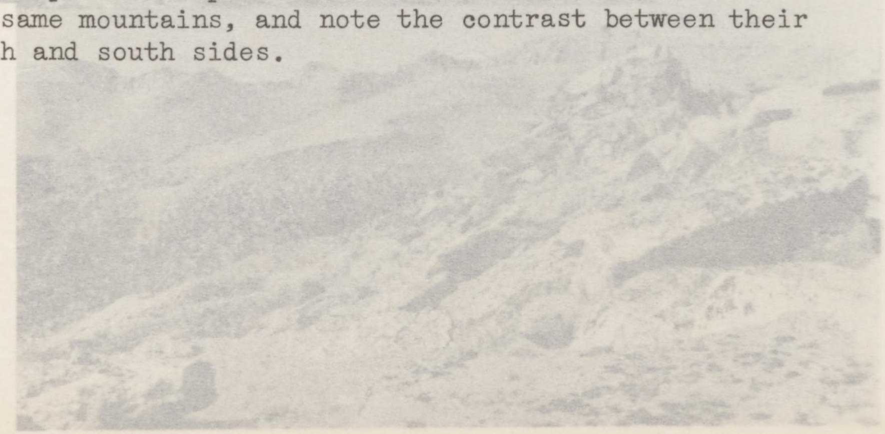


A. Looking east into lop-sided upper Wright Creek basin, with the sheer wall of Mt. Barnard on the south, and the sloping flanks of Mt. Tyndall on its north side.

Note that the glacial lake is held back by a solid granite shoulder rather than by a moraine. This is typical of the east side, while the reverse is true on the west side of the Basin.

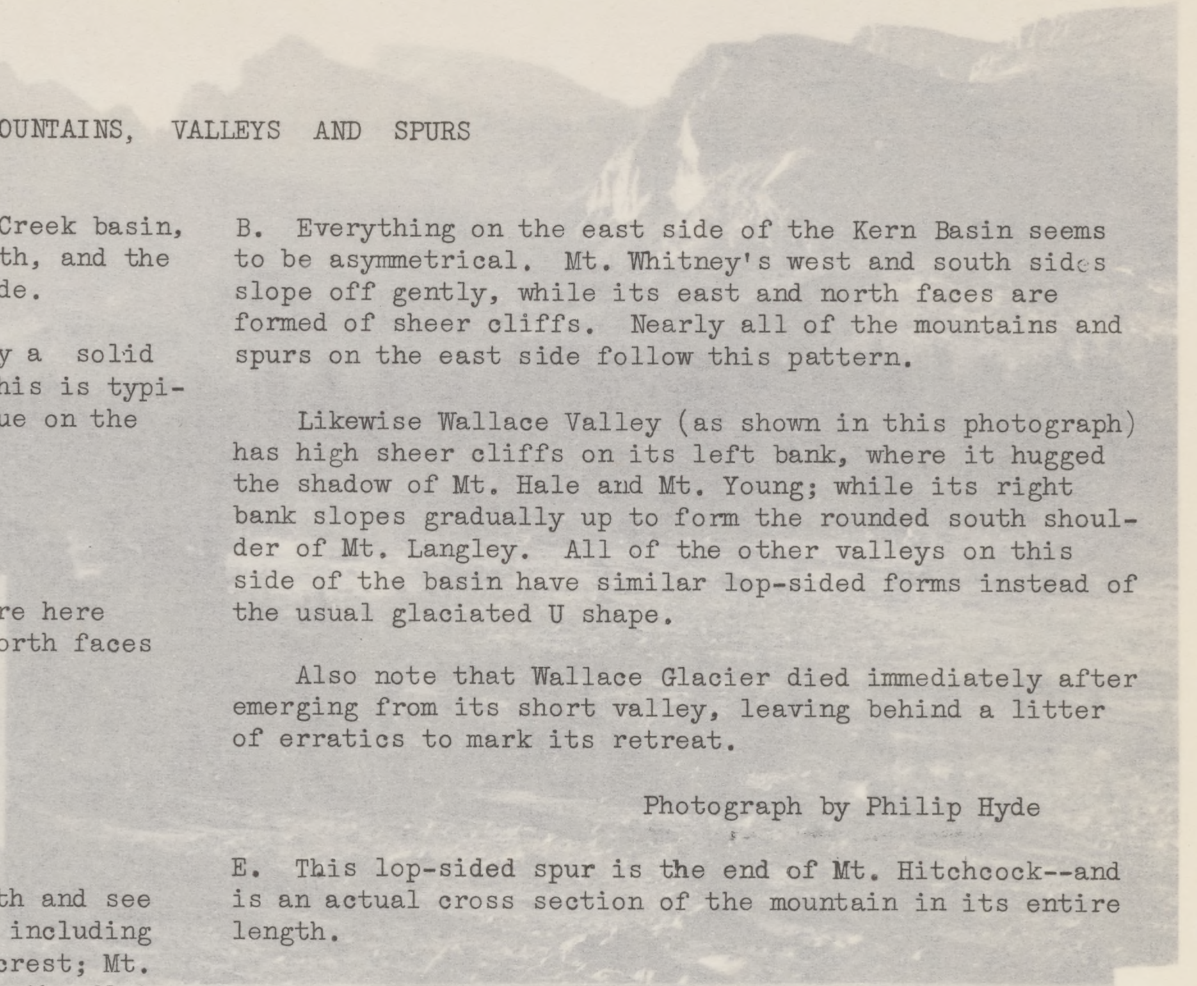


C. In contrast to the photograph above, we are here looking south from Mt. Barnard at the sheet north faces of Mt. Russell, Mt. Whitney and Mt. Young.



D. From the summit of Mt. Guyot, we look north and see only the rounded, sloping sides of the spurs, including Pickering and Newcomb on the first dome-like crest; Mt. Hitchcock, the next rounded crest; and finally the flat hump-back of Mt. Whitney on the skyline.

Compare this picture with the one below it, both of the same mountains, and note the contrast between their north and south sides.

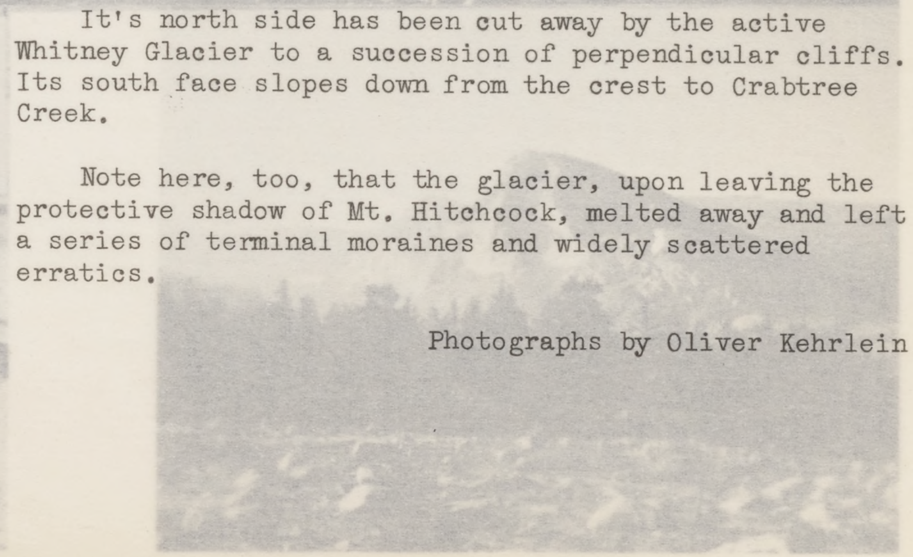


B. Everything on the east side of the Kern Basin seems to be asymmetrical. Mt. Whitney's west and south sides slope off gently, while its east and north faces are formed of sheer cliffs. Nearly all of the mountains and spurs on the east side follow this pattern.

Likewise Wallace Valley (as shown in this photograph) has high sheer cliffs on its left bank, where it hugged the shadow of Mt. Hale and Mt. Young; while its right bank slopes gradually up to form the rounded south shoulder of Mt. Langley. All of the other valleys on this side of the basin have similar lop-sided forms instead of the usual glaciated U shape.

Also note that Wallace Glacier died immediately after emerging from its short valley, leaving behind a litter of erratics to mark its retreat.

Photograph by Philip Hyde



E. This lop-sided spur is the end of Mt. Hitchcock--and is an actual cross section of the mountain in its entire length.

It's north side has been cut away by the active Whitney Glacier to a succession of perpendicular cliffs. Its south face slopes down from the crest to Crabtree Creek.

Note here, too, that the glacier, upon leaving the protective shadow of Mt. Hitchcock, melted away and left a series of terminal moraines and widely scattered erratics.

Photographs by Oliver Kehrlein

walls. There they carved out vertical walls and left the other bank sloping. A perfect example of this type can be seen in the Crabtree Valley, with its bizarre sculptured cliffs on the south and the sloping sides of Mt. Hitchcock on the north.

shadow of
south bank

Lateral
streams &
glaciers
&
new cirques

Where conditions were propitious, a further development took place. Lateral glaciers headed back into the furrows cut by little side streams to form small recessed cirques. This brought more sunlight into the valley and caused the glacier either to shift farther to the south or start a new channel on the south side. A perfect example of such a scalloped arrangement can be seen in Wallace Creek valley with its twin streambeds and four alcoved cirques, each with one or more lakes. The south slopes of Mt. Barnard make up the north or right bank.

All of these east side valleys were short. As soon as the glaciers emerged into the glaring sunlight on the plateaus, they immediately began to melt and to deposit their loads of rocks and silt. These formed morainal mounds which, in turn, developed into dams and behind these lakes collected. As time went on, the lakes filled with silt, and vegetation followed to give us the lush meadows we find at the mouth of each of these valleys.

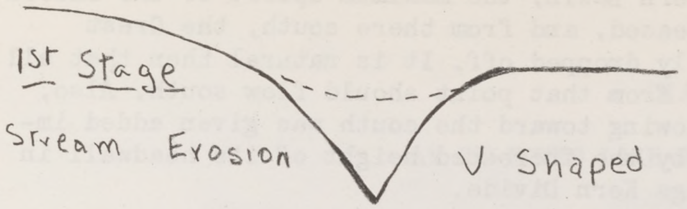
We can follow this whole cycle in Crabtree Meadows. On both sides stand the long parallel ridges of boulders--the lateral moraines. Between them, swinging in semi-circles, are the remains of the terminal moraines, breached here and there where the stream has broken through at various times. Upstream we find small lakes impounded by low moraines. Farther down we slog through a swamp filled with sedges and grasses. And, finally, we come to the grassy meadows below, surrounded by willows and young lodgepole pines. Meadows are deficient both in quantity and quality on the east side as compared with numerous lush grass-lands on the west side. This is to be expected when we realize the type and number of storms that visited each area.

Shortly after leaving their plateau meadows, the streams cascade down rocky V-shaped troughs into the Kern Canyon. These side streams have cut back their channels as fast as the Kern lowered its floor. Consequently, there are no cliffs and no spectacular waterfalls.

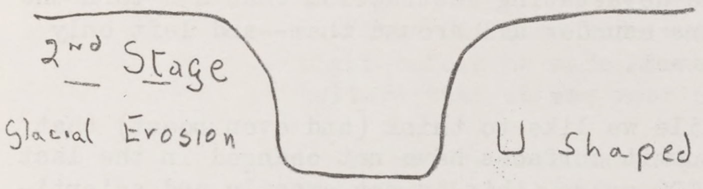
The Kern Canyon is a curious contradiction. It appears U-shaped and is always so described. Actually, it is V-shaped. Its real bottom is V-shaped, as the result of recent stream action. But it has been filled in with a false flooring of stream-borne boulders and debris fallen from the walls. The upper portion of the walls flares back diagonally as a result of longtime weathering.

Stream action and glacial quarrying have alternated all through ice ages and the formation of the canyon, but the major destruction was that

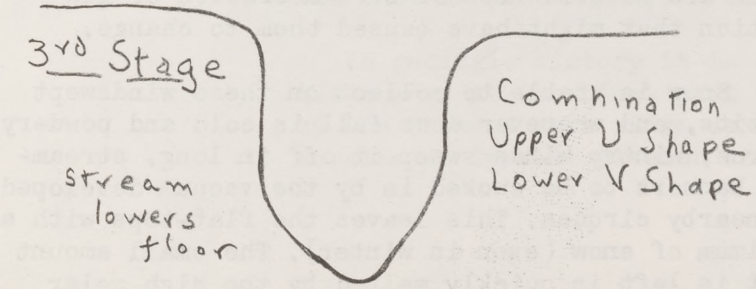
done by the streams.



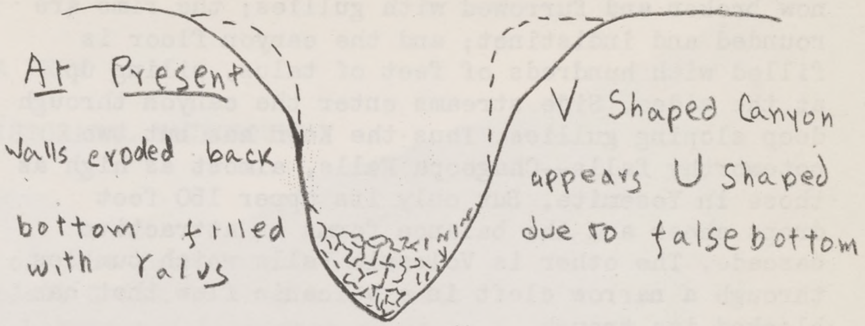
Thus the canyon was started by the torrential storms of the pre-glacial pluvial period. The resulting deluges centered on the main channel and there found longitudinal structural weaknesses in the granite, to gouge out a deep V-shaped gorge.



Then the glaciers came and flattened the bed, and straightened the walls to form a typical U-shaped glacial trough.



Short glacial cycles continued to alternate with longer interglacials--and that meant that the deluges continued to cut new V-shaped bottoms and round off the rim, while the glaciers intermittently straightened the walls.



As the level of the glaciers sank lower in the canyon, more of the walls was exposed to weathering. This resulted in the rims spalling off and the upper sections breaking away, to cut them back diagonally into a V-shape. The rocks and debris accumulated in the bottom faster than the river could carry them away. This has resulted in what appears to be a flat bottomed U-shaped canyon.

Had the granite been more solid and the glaciation more consistent, the Kern Canyon might have boasted of several Yosemites--one at the junction with the Kern Kaweah River, the other below where the Big Arroyo joins the main canyon.

This comparison with Yosemite suggests another similarity--that of the hanging valleys that are typical of both canyons. In each, the main stream and trunk glacier lowered the canyon floor so rapidly that the side streams could not keep pace and were left "hanging," thousands of feet above. But in the Kern, the side streams do not empty into the canyon as free-leaping falls--such as those that have made Yosemite famous.

The first apparent reason is that in the Kern there are no great monolithic cliffs. There, the granite is closely jointed and is broken readily by stream and frost action. As a result, the canyon walls, which were once polished by glaciers, are now broken and furrowed with gullies; the rims are rounded and indistinct; and the canyon floor is filled with hundreds of feet of talus, piling up at the sides. Side streams enter the canyon through deep sloping gullies. Thus the Kern has but two noteworthy falls--Chagoopa Falls, almost as high as those in Yosemite. But only its upper 150 feet drops sheer and the balance forms an attractive cascade. The other is Volcanic Falls which tumbles through a narrow cleft in a volcanic flow that has blocked its trough.

Ever since pioneer days, visitors have marvelled at the great depth of the Kern Canyon and at the direct and straight line it cuts down its 80-mile valley. Also, geologists have wondered and sought reasons for its southerly direction in contrast to the other major streams which follow the natural westerly slope of the Sierra Block.

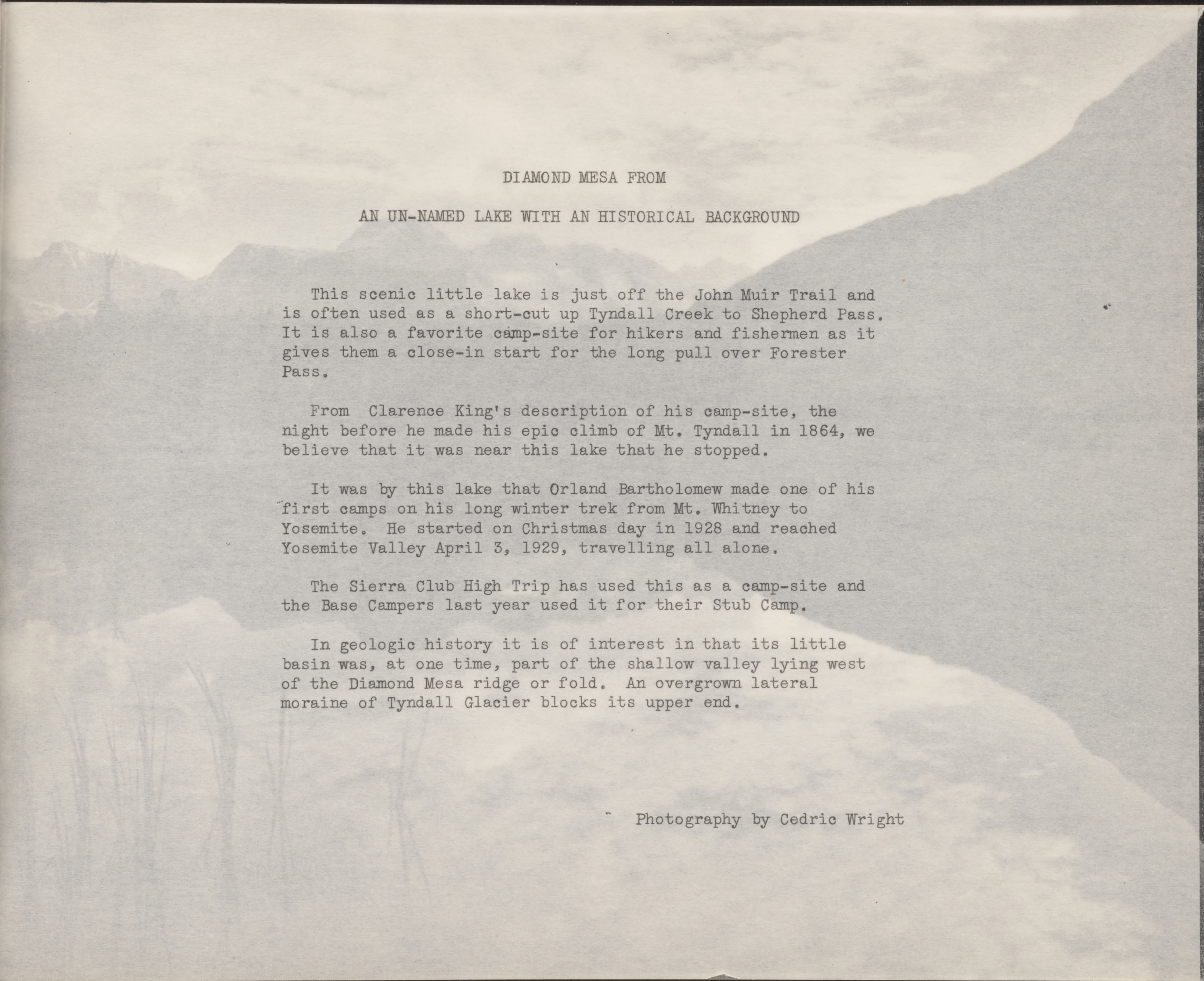
Prof. Andrew Lawson's explanation was based on the presence of an old rift or fault in the basic rock. Dr. Matthes, in the absence of evidence of any major faults, ascribed the cause to a local weakness in the granite structure. To this we can add the pre-existent surficial condition which directed and concentrated the stream flow down the central channel. We refer to the ancient pattern (north to south) of Jurassic folds and stream beds laying the course of the final stream. Also, the Great Western Divide prevented the streams from flowing westward after each uplift, but rather directed them eastward toward the central channel where they met those from the Crest and together they lowered the middle of the valley. Later, the lateral spurs lent additional force and directed the tributaries into main stream.

And finally, a new factor arose here changing the slope from west to south. At this point in the Upper Kern Basin, the maximum uplift of the Sierra Block ceased, and from there south, the Crest gradually dropped off. It is natural then that all streams from that point should flow south. Also, this flowing toward the south was given added impetus by the increased height of its headwall in the Kings Kern Divide.

The next most startling feature to arrest the attention of the visitor is the unique flatness of the "tabular" mountains. From a distance, they appear out of place among the sharp peaks and pinnacled crests. On close scrutiny, one wonders by what miraculous force they have been able to resist the devastating destruction that has torn the mountains asunder all around them--and left only them intact.

While we like to think (and even boast) that these summit surfaces have not changed in the last 60,000,000 years, this is not exactly and scientifically true. Their level has actually been lowered by nivation (i.e. frost action) between 12 and 15 feet, since these mountains reached their present height. Otherwise, their form has not changed. There are no evidences of stream erosion or glaciation that might have caused them to change.

Snow is unable to collect on these windswept summits, and whatever does fall is cold and powdery. Fierce, wintry winds sweep it off in long, streaming banners to be sucked in by the vacuum developed in nearby cirques. This leaves the flat-tops with a minimum of snow (even in winter). The small amount that is left is quickly melted by the high solar radiation and flows into the granite sand, and into crevices of the rocks. There it freezes during the night, only to thaw again upon the return of the sun. This alternating freezing and thawing means persistent and irresistible cracking, breaking,



DIAMOND MESA FROM

AN UN-NAMED LAKE WITH AN HISTORICAL BACKGROUND

This scenic little lake is just off the John Muir Trail and is often used as a short-cut up Tyndall Creek to Shepherd Pass. It is also a favorite camp-site for hikers and fishermen as it gives them a close-in start for the long pull over Forester Pass.

From Clarence King's description of his camp-site, the night before he made his epic climb of Mt. Tyndall in 1864, we believe that it was near this lake that he stopped.

It was by this lake that Orland Bartholomew made one of his first camps on his long winter trek from Mt. Whitney to Yosemite. He started on Christmas day in 1928 and reached Yosemite Valley April 3, 1929, travelling all alone.

The Sierra Club High Trip has used this as a camp-site and the Base Campers last year used it for their Stub Camp.

In geologic history it is of interest in that its little basin was, at one time, part of the shallow valley lying west of the Diamond Mesa ridge or fold. An overgrown lateral moraine of Tyndall Glacier blocks its upper end.

Photography by Cedric Wright

spalli
tion--
story
integr

Wi
tile sc
and onl
in this
imum of
would s
and Dia
summit
lupin u
(Lupinus
like a m
well. Ho
as the m
inhabit
yellow D
Hulsea (
lavender

To c
fectly le
with sedg
Lewisia p

In 19
of polemon
Whitney an
plant" in
was gone,
in full bl
yards sout
the terrif
updraughts
torment the
outstanding

spalling and heaving. That is what is called nivation--and every one of the tabular summits tell the story of a million years of this slow form of disintegration.

DAINTY FLOWERS DEFY NATURE

Without moisture, there can be but little fertile soil. Vegetation is therefore extremely sparse and only the hardiest of alpines are able to survive in this battle against boreal conditions with a minimum of nourishment. Casually, and from memory, we would say that Mt. Langley has the least vegetation and Diamond Mesa the most. And, yet, just below the summit plateau of Mt. Langley we found a little lupin unlike anything we had ever seen anywhere else (Lupinus Breweri Gray var. bryoides). It was more like a mossy mat than the shrubby plant we know so well. However, three showy alpine plants stand out as the most popular choice of most climbers and they inhabit all of these summit platforms: the little yellow Draba (d. Lemonii), the showy but straggly Hulsea (algida Gray) and the fragrant pannicles of lavender (to blue) Polemonium eximium.

To our utter astonishment, we found on the perfectly level summit of Table Mt. many mossy areas with sedges and dainty collections of wreathed Lewisia pygmaea.

In 1952 we photographed a bedraggled specimen of polemonium, very close to the summit of Mt. Whitney and labeled and displayed it as the "highest plant" in the U.S.A. In 1954, when we returned, it was gone. But instead we found a half dozen plants in full bloom at the edge of the East Face cliff, 50 yards south of the summit shelter. When I think of the terrific buffetings I've taken from the vicious updraughts over this raw edge, I am filled with wonderment that such a brittle little plant with its upstanding plume of delicate flowers and its feathery leaves can endure these, possibly the worst, climatic conditions in our country.

Botanists look upon these high table mountains as "botanical islands"--islands in the sky, cut off completely from their surroundings. Away up there, they hope to discover some rare prehistoric specimen, new to science, that has been isolated from its kind since before the Pleistocene. Several years ago Peter Raven, our learned camp naturalist, climbed Lamarck Mesa with his heart and eyes full of expectations. He found no rare plant--BUT he did discover a new beetle, a species new to science--and latest news is that said beetle has been labeled--Ravenii.

We collected a full range of alpine plants on the Diamond Mesa, whose surface extends from 12,200 ft. to 13,400 ft. These we submitted to Peter Raven for listing and determination. It is only a partial list of those one might expect on the rocky slopes of any high peak in the southern Sierra, but it can serve as indicative. The short notes after each item are by Peter, for which we are appreciative.

Calamagrostis Breweri Thurb. Shorthair Grass
General distribution: mountain meadows of the high Sierra Nevada, California.

Koeleria cristata (L.) Pers. Junegrass
Widely distributed in the United States, Canada, and Mexico. A variable species which may yet be split into several species.

Poa Suksdorfii (Beal) Vasey. Suksdorf Bluegrass
Alpine summits of the Western states.

Sitanion Hystrix (Nutt.) J.G.Smith Squirreltail Grass

Dry plains and mountain slopes, western United States and Mexico.

Carex Helleri Mkze.
High montane, Sierra Nevada and White Mountains of California and Nevada.

Eriogonum incanum T. & G.
Gravelly slopes and peaks, Sierra Nevada of California.

Eriogonum ovalifolium Nuttall var. nivale (Canby) Jones.

The species is found throughout the mountains of western North America; this particular variety is restricted to the southern Sierra Nevada.

Oxyria digyna (L.) Hill. Scurvy Grass
High altitudes and latitudes of the Northern Hemisphere.

Calyptridium umbellatum (Torr.) Greene var. caucidiferum (Gray) Jeps.
Mountains of the West; the variety is found at higher elevations.

Lewisia pygmaea (Gray) Rob. subsp. glandulosa (Rydb.) Ferris
Mountains of the west; the subspecies is found at higher elevations.

Silene Sargentii Wats. (a type of pink)
Higher mountains of California and Oregon.

Ranunculus Eschscholtzii Schlecht. var. oxynotus (Gray) Jepson.
The species is found in the alpine and arctic regions of the Western Hemisphere; the variety is found in the mountains of California.

Arabis Lemmonii Wats.
Higher mountains of the West.

Draba Breweri Wats.
Sierra Nevada and White Mountains of California.

Draba Lemmonii Wats.
Higher mountains of California, Oregon and Nevada.

Rhodiola rosea L. var. integrifolia (Raf.) Jeps.
Rose-root.
From Alaska south along the Rockies and Sierra Nevada.

Potentilla nubigena Greene
Higher mountains of California.

Lupinus (probably Lyalli Gray)
From the Cascades south to the Southern Sierra.

Epilobium obcordatum Gray. Rock Fringe.
Higher mountains of California and Nevada.

Gentiana Newberryi Gray. Newberry Gentian.
High mountains of California and Oregon.

Leptodactylon pungens (Torr.) Nutt. Granite Gilia.
High mountains of the Western United States.

Polemonium eximium Greene.
High southern Sierra Nevada.

Penstemon Davidsonii Greene.
High mountains of Pacific States and Nevada.

Penstemon heterodoxus Gray. Whorled Penstemon.
High mountains of Pacific States.

Antennaria sp. Match-heads.
High Western Mountains.

Aster Peirsonii C. W. Sharsmith. Peirson Aster.
High southern Sierra Nevada.

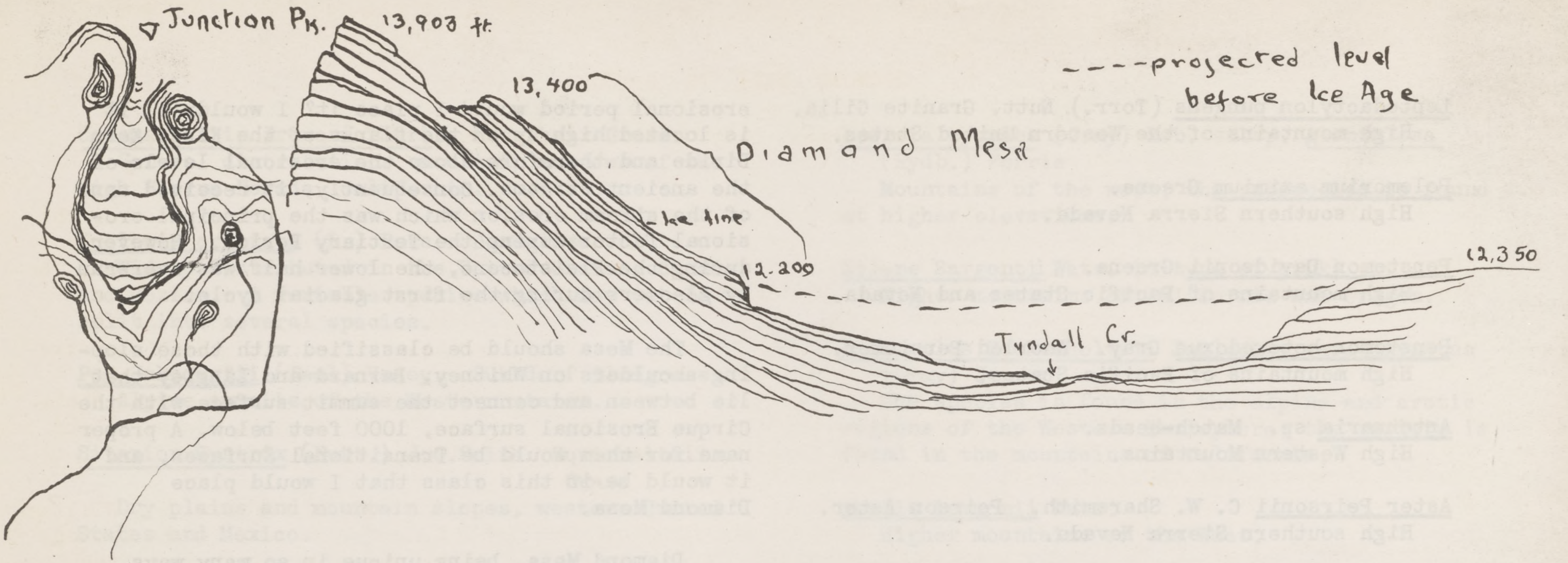
Hulsea algida Gray.
Mountains of California, Oregon and Nevada.

Diamond Mesa is not a true isolated island. Though labeled a Mesa, it is different from any other Mesa and has been dubbed "the freak among the unusual landforms of the Kern Basin." Unquestionably, Diamond Mesa, with its exact and geometrical design, is out of place in this distorted world where everything is shapeless, crooked and unsymmetrical. Even its classification is questionable, for it is not a mesa in the true sense of the word; you'd hardly call it a mountain; nor even the shoulder or buttress of a mountain (Junction Pk.), as it is cut off from that peak. Dr. Matthes classifies it as Boreal Plateau Erosional Surface and I am sure that the Mesa squirms under such a slight. Actually, Boreal Plateau is more than 3000 feet below its nearest summit plateau (Mt. Langley) while the Diamond is less than a 1000 feet below Junction Pk. In which erosional period would I place it? I wouldn't. It is located high up on the flanks of the Kings Kern Divide and therefore above the erosional levels of the ancient streams. Consequently, it received none of the stream erosion which was the principal erosional factor during the Tertiary Period. However, during the Pleistocene, the lower half was over-run by glaciers during the first glacial cycle.

The Mesa should be classified with those sloping shoulders on Whitney, Barnard and Langley that lie between and connect the summit surface with the Cirque Erosional surface, 1000 feet below. A proper name for them would be Transitional Surfaces, and it would be in this class that I would place Diamond Mesa.

Diamond Mesa, being unique in so many ways, deserves special study and comment. From a distance it looks like a gigantic plaque, flattened against the sloping south flank of Kings Kern Divide, just below Junction Peak, to which it is connected by a narrow ragged arete. The slope of its surface is greater than that of the Tyndall Basin floor. Thus, its southerly tip rises abruptly 200 feet above the valley, whereas its northerly tip rises over 1000 feet above the two cirques that almost cut it off from the Divide.

The surface of the Mesa is sloped at an increasing angle, which follows parallel with the underlying granite stratifications as they rise to the summit of the Kings Kern Divide. These tilted strata can be followed along the cliffs on all sides of the Mesa, and their broken butt-ends can be seen on the vertical north face of Junction Peak. At one time, the surface of the Mesa continued all the way to the summit of Junction Pk. However, the glaciers found a structural flaw and quarried back into the junction between the Mesa and the Divide, almost cutting them apart.

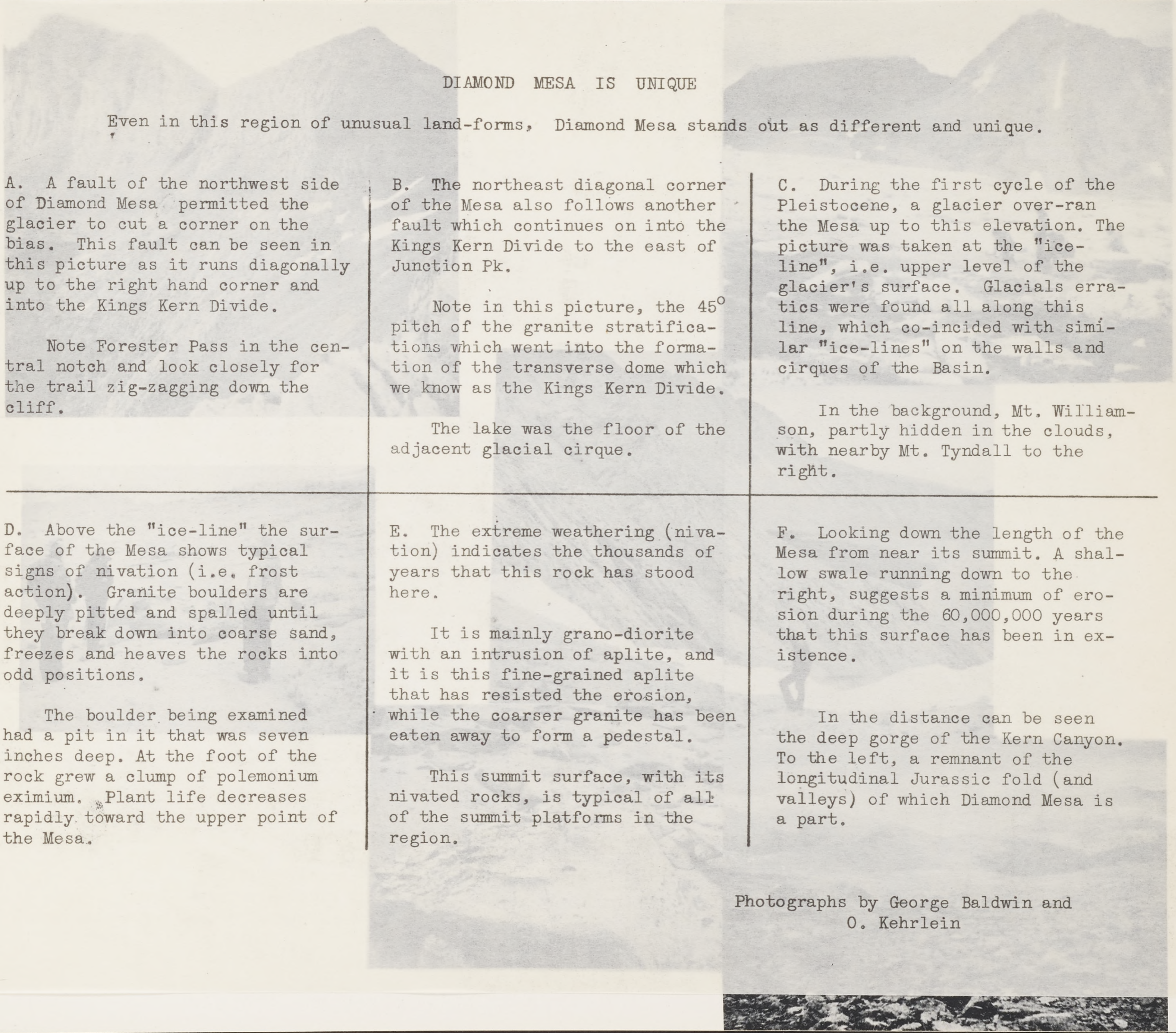


DIAMOND MESA AND THE UPPER BASIN OF TYNDALL CREEK---IN CONTOUR AND PROFILE

One reason that Diamond Mesa was not eroded by Tertiary streams is that it was one of the original ridges in the old Jurassic folds. Its particular fold can readily be followed (either in the field or on the map) starting with Center Peak, running south through Junction Peak, Diamond Mesa and across the valley to points 12,300 and 12,350. With the uplifting of the Sierra Block, the streams to the east of the Mesa Ridge gathered into the present-day Tyndall Creek and flowed through the low point between the Mesa and point 12,300. Also the small streams flowing down each side of the Mesa set the pattern for the glaciers that were to follow. The Mesa was then low and rounded and had no cliffs.

The glaciers of the first glacial cycle in this region were about 500 feet thick. This is suggested by the fact that all of the high glacial cirques in this section of the Upper Basin are situated at the 12,500 foot level and that the ice line is about 500 feet above. Dr. Matthes found similar thicknesses for the glaciers near Mt. Whitney.

As the first glaciers flowed down Tyndall Basin, they crossed Diamond Mesa along the 12,800 ft. contour, leaving a well defined ice line and a row of scattered erratics. The ice line is now broken down and the erratics badly weathered, but all can be readily recognized. Above the ice line the surface of the Mesa is typically nivated--coarse granite sand and half buried boulders and weathered rocks give mute testimony to the long time they have been there undisturbed. In the lower third on the right side there is slight evidence of a shallow swale, suggesting that at some time there



DIAMOND MESA IS UNIQUE

Even in this region of unusual land-forms, Diamond Mesa stands out as different and unique.

A. A fault of the northwest side of Diamond Mesa permitted the glacier to cut a corner on the bias. This fault can be seen in this picture as it runs diagonally up to the right hand corner and into the Kings Kern Divide.

Note Forester Pass in the central notch and look closely for the trail zig-zagging down the cliff.

B. The northeast diagonal corner of the Mesa also follows another fault which continues on into the Kings Kern Divide to the east of Junction Pk.

Note in this picture, the 45° pitch of the granite stratifications which went into the formation of the transverse dome which we know as the Kings Kern Divide.

The lake was the floor of the adjacent glacial cirque.

C. During the first cycle of the Pleistocene, a glacier over-ran the Mesa up to this elevation. The picture was taken at the "ice-line", i.e. upper level of the glacier's surface. Glacials erratics were found all along this line, which co-incided with similar "ice-lines" on the walls and cirques of the Basin.

In the background, Mt. Williamson, partly hidden in the clouds, with nearby Mt. Tyndall to the right.

D. Above the "ice-line" the surface of the Mesa shows typical signs of nivation (i.e. frost action). Granite boulders are deeply pitted and spalled until they break down into coarse sand, freezes and heaves the rocks into odd positions.

The boulder being examined had a pit in it that was seven inches deep. At the foot of the rock grew a clump of polemonium eximium. Plant life decreases rapidly toward the upper point of the Mesa.

E. The extreme weathering (nivation) indicates the thousands of years that this rock has stood here.

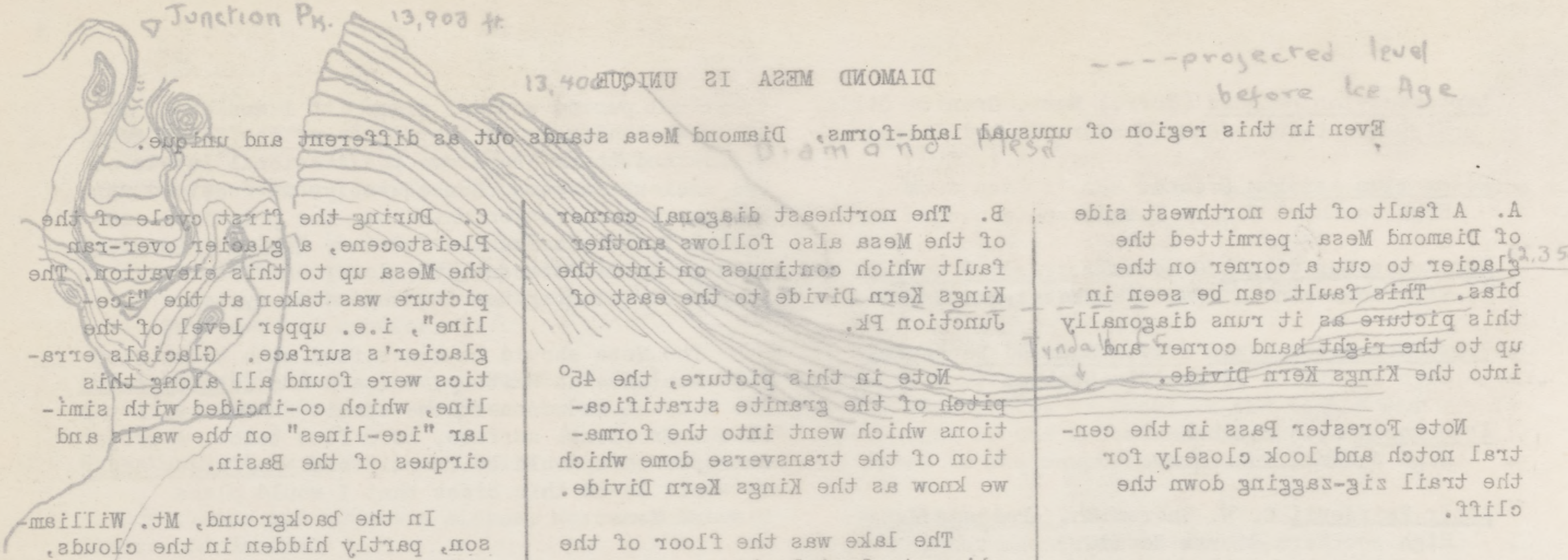
It is mainly grano-diorite with an intrusion of aplite, and it is this fine-grained aplite that has resisted the erosion, while the coarser granite has been eaten away to form a pedestal.

This summit surface, with its nivated rocks, is typical of all of the summit platforms in the region.

F. Looking down the length of the Mesa from near its summit. A shallow swale running down to the right, suggests a minimum of erosion during the 60,000,000 years that this surface has been in existence.

In the distance can be seen the deep gorge of the Kern Canyon. To the left, a remnant of the longitudinal Jurassic fold (and valleys) of which Diamond Mesa is a part.

Photographs by George Baldwin and
O. Kehrlein



DIAMOND MESA AND THE UPPER BASIN OF TYNDALL CREEK -- IN CONTOUR AND PROFILE

One reason that Diamond Mesa was not eroded by Tertiary streams is that it was one of the original ridges in the old Jurassic folds. Its particular fold can readily be followed (either in the field or on the map) starting with Center Peak, running south through Junction Peak, Diamond Mesa and across the valley to points 12,300 and 12,350. With the uplifting of the Sierra Block, the streams to the east of the Mesa Ridge gathered into the present-day Tyndall Creek and flowed through the low point between the Mesa and point 12,300. Also the small streams flowing down each side of the Mesa set the pattern for the glaciers that were to follow. The Mesa was then low and rounded and had no cliffs.

The glaciers of the first glacial cycle in this region were about 500 feet thick. This is suggested by the fact that all of the high glacial cirques in this section of the Upper Basin are situated at the 12,500 foot level and that the ice-line is about 500 feet above. Dr. Matthes found similar evidences for the glaciers near Mt. Whitney.

As the first glaciers flowed down Tyndall Basin they exposed Diamond Mesa along the 12,800 ft. contour, leaving a small definite line and a row of scattered erratics. The ice-line is now broken down and the erratics badly weathered, but all can be readily recognized. Above the ice-line, the surface of the Mesa is typically covered with coarse granite sand and half buried boulders and weathered rocks give mute testimony to the long time they have been there undisturbed. In the lower third on the right side there is slight evidence of a shallow swale, suggesting that at some time there

had been some run-off from the winter snow covering.

Anyone curious as to how Diamond Mesa got its geometrical shape, can readily read the whole story by glancing at a topographical map. The northeast face follows the structural fault, referred to above. The southeast corner was cut away by the Tyndall Glacier as it swept past during the second and third glacial cycles, but was not thick enough to ride over that corner. Instead, it quarried away at its base and lopped it off. The line of the southwest face follows the direction of the vertical planes in the granite, so that both the Tyndall Glacier and the small glacier west of the Mesa undermined this side, layer by layer along the given line. The northwest side is a direct extension of the cirque wall following a major fault that runs through the Kings Kern Divide.

The Mesa is a most inhospitable place. We saw only one animal on its broad surface--a snow-shoe rabbit who disappeared as we approached. We also noted a few burrow holes of small rodents and some old droppings of what could have been deer. Mountain sheep have been known to cross the Basin from their usual feeding grounds on the eastern slopes of the Crest and might visit the Mesa. Coyote droppings were seen below the Mesa but not the animal himself. He makes himself most evident by his hideous howling at a time when we were in our sleeping bags and needed the rest.

GOLDEN TROUT

There is one animal that is distinctive, and originated in the Basin--the Golden Trout (Salmo Roosevelti). While there are several other varieties of Golden Trout, none of them are as attractive or as game as Roosevelti. It was first discovered in what was then called Volcanic Creek, now renamed Golden Trout Creek. They have been transplanted into creeks and lakes all over the Sierra, but after a time they lose their brilliant golden coloring.

The Basin also has an unusual tree that is endemic in the region--the Foxtail Pine (p. Balfouriana). It is one of the most beautiful, yet most rugged of the pines. It lives up there, often alone, near where the glaciers have just vacated but where the winter storms still rage. It is the only timberline tree that stands erect. And while its crown may be torn and shredded, it never yields or sprawls like the others that live at similar elevations. Foxtail was discovered in 1852 on Scott Mt. by the Scottish explorer John Jeffrey. He, like the tree, was a rugged individualist, who explored and collected far ahead of civilization, a solitary man who claimed few friends. Thus, he was not quickly missed when he disappeared while enroute, alone, across the Colorado Desert to San Diego. Thirst, or the Indians, may have killed him--his body was never found. It is interesting to consider that it may have been the forefathers of these same Indians that left the artifacts that we found in the Kern Basin last summer. But, for the present, let us get back to an interesting sidelight on the Foxtail pine.

The Foxtail lives here on the Boreal erosional plateaus in beautiful stands. From there it ascends the granite slopes like lone sentinels or advance guards, standing vigil over the flock below. The upper limit for this tree is at 12,000 feet, just 500 feet below where the glaciers were formed.

FOXTAIL'S CURIOUS HISTORY

It is a curious fact that this exceptional tree lives here at the southern tip of the high Sierra and nowhere else in the Range. True, it is found again among the Cascade peaks west of Mt. Shasta and near California's northern border. There it is found on Mt. Eddy, Mt. Scott and in the Yolla Bollys, growing up to within a 1000 feet of the permanent ice line. There is but little doubt that these two islands of Balfouriana were once joined together by a belt of the same trees the full length of the Sierra and on into the Cascades.

The question naturally arises: when did the Foxtail disappear from the northern Sierra and what caused their disappearance?

The answer to the first question is quite evident from our previous study of the climate in the Kern Basin during the Pleistocene. The Foxtail disappeared from the balance of the Sierra with the advent of the Great Ice Age.

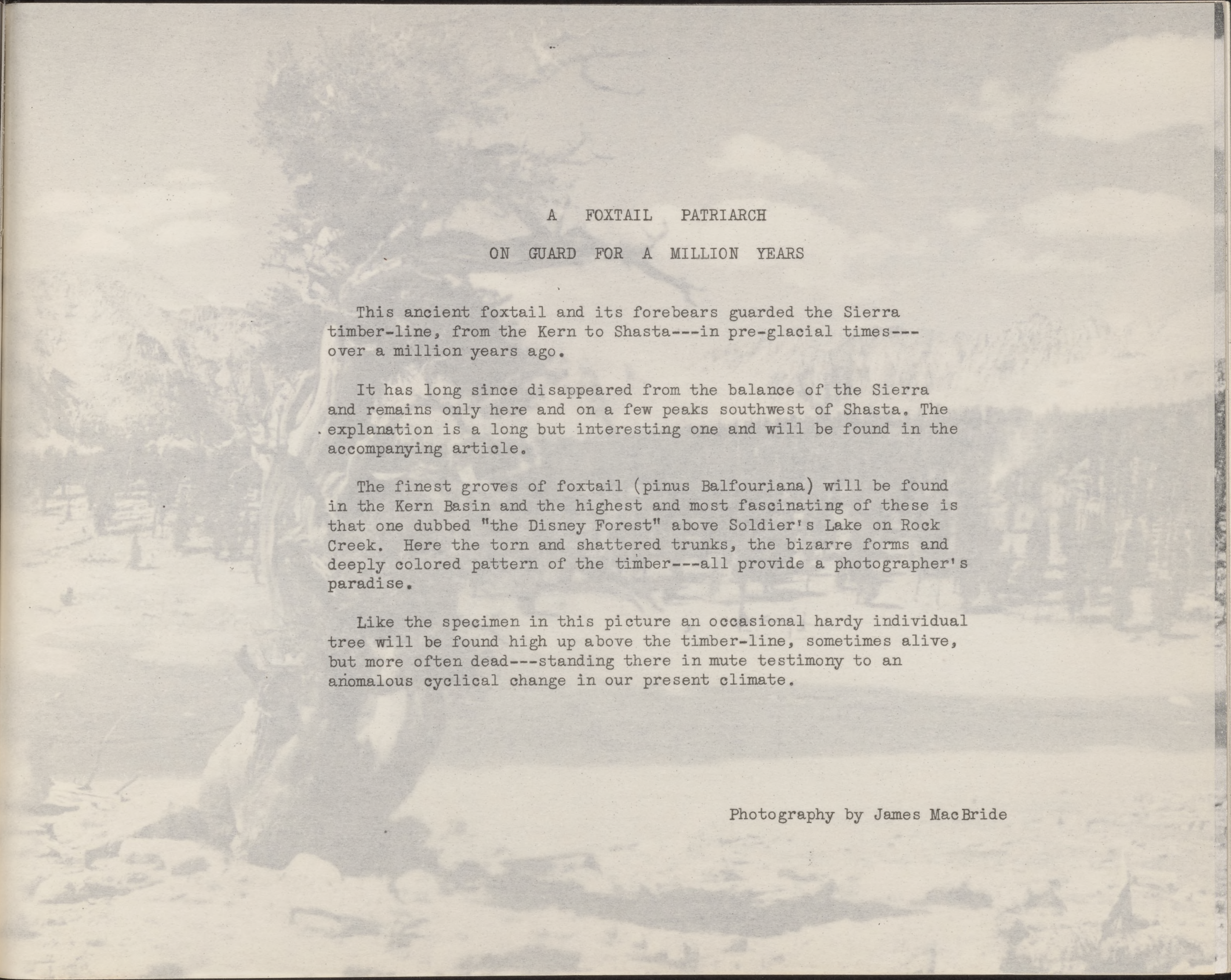
Why did they disappear farther north but persist here? Let us answer the last question first, and from that answer, learn the other. It is a fundamental principle accepted by botanists that a plant today has the same habits as a similar plant of the same species had in prehistoric times. So, generally speaking, the Foxtail pines occupy today relatively the same life-zone that they did in preglacial days. They thrive best up where it is cold and dry; where the summers are short and the snow blanket lasts a long time. Put another way, they can endure this kind of climate where none other can. Likewise, they do not like the competition of a crowded forest lower down.

So, before the start of the Pleistocene, the Foxtails occupied the timberline belt, about two or three thousand feet wide, which extended from the headwaters of the Kern River in the south, to Mt. Shasta in the north. Then came the Ice Age, initiated and maintained by a continuous succession of Maritime western storms. These blanketed the Sierra and the high peaks of the Cascades with a great coating of snow. From the Kings Kern Divide north, this blanket of snow accumulated and compacted into an almost continuous mer de glace (sea of ice) that literally and actually smothered the 3000 foot timberline belt occupied by the Foxtail pine. There the ground remained frozen for 100,000 years and when the first cycle of glaciers melted away, the Foxtails had been completely frozen out--everywhere except in the Kern and in the lower peaks west of Mt. Shasta.

They did not perish in the Kern Basin, for the reasons noted before: the Maritime storms were trapped by the Great Western Divide and insufficient snow was deposited on the Crest to form a complete sea-of-ice and thoroughly cover the landscape as was done in the other watersheds. Here the ice was never more than 500 feet thick in the cirques, and never overran the Boreal erosional plateaus--the habitat of the Foxtail.

While we are not familiar with the conditions surrounding the northern locations in which the Foxtails have persisted, we surmise that a similar hydrological condition prevailed. Mt. Eddy, Mt. Scott and Yolla Bolly are all on the eastern fringe of the Coast Range. They are high enough to acquire an annual blanket of snow and therefore to attract the Foxtail pines. However, they are so far east that the greatest part of the Maritime precipitation was trapped by the Western section of the Coast Range before it reached these three peaks. Consequently, they were never so thoroughly covered with ice and snow that the Foxtail was killed off.

The timberline usually moves up gradually with the warming of the climate. Likewise, as a cold climatic cycle develops, the line of green trees moves down the slopes leaving dead trunks standing high and alone. With these two principles goes a



A FOXTAIL PATRIARCH

ON GUARD FOR A MILLION YEARS

This ancient foxtail and its forebears guarded the Sierra timber-line, from the Kern to Shasta---in pre-glacial times---over a million years ago.

It has long since disappeared from the balance of the Sierra and remains only here and on a few peaks southwest of Shasta. The explanation is a long but interesting one and will be found in the accompanying article.

The finest groves of foxtail (pinus Balfouriana) will be found in the Kern Basin and the highest and most fascinating of these is that one dubbed "the Disney Forest" above Soldier's Lake on Rock Creek. Here the torn and shattered trunks, the bizarre forms and deeply colored pattern of the timber---all provide a photographer's paradise.

Like the specimen in this picture an occasional hardy individual tree will be found high up above the timber-line, sometimes alive, but more often dead---standing there in mute testimony to an anomalous cyclical change in our present climate.

Photography by James MacBride

found again among the Cascade peaks west of Mt. Shasta and near California's northern border. There it is found on Mt. Eddy, Mt. Scott and in the Yolla Bollys, growing up to within a 1000 feet of the permanent ice line. There is but little doubt that these two islands of Balfouriana were once joined together by a belt of the same trees [illegible] length of the Sierra and on into the Cascades.

The question naturally arises: when did the Foxtail disappear from the northern Sierra and what caused their disappeara[illegible]

The answer to the first question is quite evident from our previous study of the climate in the Kern Basin during th[illegible] disappeared from t[illegible] advent of the Gre[illegible]

Why did they disappear farther north but persist here? Let us [illegible] and from that ans[illegible] damental principle [illegible] plant today has th[illegible] of the same spec[illegible] generally speaking, the Foxtail pines occupy today relatively the same life-zone that they did in pre-glacial days. Th[illegible] and dry; where the[illegible] blanket lasts a long ti[illegible] can endure this kind of climate whe[illegible] can. Likewise, they do not like the competition of a crowded forest lower down.

So, before the start of the Pleistocene, the Foxtails occupied the timberline belt, about two or three thousand feet wide, which extended from the headwaters o[illegible], to Mt. Shasta in the north. Then came the Ice Age, initiated and maintained by a continuous succession of Maritime western storms. These blanketed the Sierra and the high peaks of the Cascades with a great coating of snow. From the Kings Kern Divide north, this blanket of snow accumulated and compacted into an almost continuous mer de glace (sea of ice) that literally and actually smothered the 3000 foot timberline belt occupied by the Foxtail pine. There the ground remained frozen for 100,000 years and when the first cycle of glaciers melted away, the Foxtails had been completely frozen out--everywhere except in the Kern and in the lower peaks west of Mt. Shasta.

[illegible] the Kern Basin, for the reas[illegible] Maritime storms were trapped by the Great Western Divide and insuffi[illegible] on the Crest to form a [illegible] thoroughly cover the land[illegible] watersheds. Here the ice wa[illegible] feet thick in the cirques, and never overran the Boreal erosional [illegible] the Foxtail.

[illegible] with the conditions [illegible] in which the [illegible] surmise that a similar hydrological condition prevailed. Mt. Eddy, Mt. Scott and Yolla Bolly are all on the eastern fringe [illegible] high enough to acquire [illegible] therefore to attract [illegible] they are so far east [illegible] Maritime precipitation was trapped by the Western section of tne Coast Range before it reached these three peaks. Consequently, they were never so thoroughly covered with ice and snow that the Foxtail was killed off.

The timberline usually moves up gradually with the warming of the climate. Likewise, as a cold climatic cycle develops, the line of green trees moves down the slopes leaving dead trunks standing high and alone. With these two principles goes a

third and related one: with the development of a warm climatic cycle, glaciers melt away and disappear, and vice versa.

In the Kern Basin, however, the timberline and glaciers apparently follow their own rules. For years, we have noted dead and dying trees far above timberline on the slopes above the Kern. John Thomas Howell, in the 1949 Base Camp Book reported that he found large dead trunks of Foxtail 500 feet above the present timberline. He also referred to a list of plants growing above the timberline that were usually found only in sub-alpine forests. These evidences would suggest that the timberline is retreating from what appears to be a well established line at the 12,000 foot contour.

The first botanist to explore in the Basin was Dr. J. T. Rothrock, who accompanied the U.S. Geographical Survey in 1875. At that time he reported: "we found the present growth of trees at timberline all dead or dying, and no younger ones taking their places." Seemingly, he too felt that the timberline was gradually lowering, even then.

Apparently, the tree line, at least in the Kern Basin, has been retreating for at least 100 years, which would suggest that the climate is getting colder rather than warmer. However, glaciologists all over the world report the glaciers in full retreat--and have been doing so for more than a hundred years. This would suggest a warming of the climate.

IS OUR CLIMATE CHANGING?

Could it be that the glaciers are dying for lack of alimentation, rather than from higher temperatures and increased melting away? Mr. Richard Tarble of the U.S. Weather Bureau reports that our winter temperatures have gone down one degree during the last 50 years, while our summer temperatures have gone up a degree. Could this possibly suggest that the Sierra climate is passing from under the influence of the west, westerly Maritime storms to the dry, cold eastern Continental storms?

If this were true, then we might expect a return of the live glaciers to the Basin. None were reported in or around the Basin. That is until 1949 when we, with reservations, reported a glacier on the north face of Mt. Pickering, west of Mt. Langley. At the time we pronounced it a dying glacier. I am beginning to think that I was wrong and that it was just coming to life. I inspected it again this year (1954) and found it larger than ever, but so covered with snow that I could not be sure. Then in October, our good friend George Wallerstein photographed it from Mt. McAdie. Comparison with my pictures evidence the fact that the little glacier (now named Howell Glacier) is increasing in size.

Then, Mr. Wallerstein added one further bit to our collection of evidence. For 30 years we have been watching that permanent snow patch south of Consultation Lake and lying on the north face of Mt. McAdie. It has two definite horseshoe terminal moraines. But I have never seen any evidence of glacial movement--i.e., bergschrund, crevasses, annual laminations or milk in the runoff waters. Mr. Wallerstein also provided me with a photograph he took in October 1954 of this ice body while free from snow. It showed a definite bergschrund, several hair-line crevasses and a succession of laminations. He had not noticed any milk in the stream or the lake. Is it possible that this erstwhile glacier is coming to life?

So, if we join all of these bits of evidence together--the lowering of the timberline, the starving of these glaciers dependent on Maritime storms, the revival of those glaciers influenced by the Continental storms, and, finally, the reduction of one degree in winter temperature--then might we not conclude that the trend is toward a cold Continental cycle.

* * * * * *

So much for the scenery and climate in the Kern Basin. Men did not always go there just to enjoy the scenery. For the past 80 years, man has gone there to fish, hunt and graze his cattle and sheep. For a long time, this remote Basin remained a closed area, a secretly guarded little kingdom where armed vaqueros did double duty--driving the cattle in, and keeping intruders out. Old Diaz kept his secret well for he alone knew the trail in. This trail can still be found on the 13,000 foot shoulder of Mt. Langley. Once in a while, some scientist came to study the geology or the flora and fauna. More recently, alpinists have found good rope climbing on its many cliffs.

BEFORE WHITE MAN

But, before the white man came, Indians roamed all over the southern Sierra. These Indians were from one of the three groups of Shoshones that occupied the lower ends of the Owens Valley, the San Joaquin Valley and the Mojave Desert. The most likely group would have been the Kern River branch, the Tubatulabals. They followed the deer trails up the Kern, dropping their seine nets in the river, collecting acorns and pine nuts.

Other possible aborigines could have been the Ute Chemehuevi. They wintered in the Mojave, but spent their summers high up in the Tehachapi mountains and from there they followed the crest into the Kern Basin. Both groups could have obtained their supply of obsidian among the volcanic flows around Golden Trout Creek.

However, a recent find suggests that possibly another and older branch--the Comanches--may have climbed from their winter homes in the Owens and Koso Valleys, up the eastern escarpment and over the Crest into the Basin. This escarpment is a forbidding barrier and especially the last 1000 feet which could have frightened any but the most hardy. But the Comanche, although their history is rather dim, may have been the type to follow the deer and mountain sheep up over the Crest.

This find was a small piece of obsidian, discovered by James Koontz at the northwest corner of the summit plateau of Mt. Whitney, on July 30, 1954. The obsidian had been flaked, and although the surfaces were slightly dulled, patination was not too evident. The fact that he found the obsidian at the place where "The Mountaineer's Route" reaches the summit plateau, leads to the inference that the person who dropped the flake, had come up by that route. Before the building of the present trail, this Mountaineer's Route would have been a feasible (and possibly the only) trail for animals and men to the top from the east side. John Muir was the first white man to use it, on his first climb of the peak, October 21, 1873. He had been preceded a month earlier by Clarence King and two months earlier by the three fishermen who claimed the first ascent of the mountain and the right to name it. All but John Muir had climbed from the west.

Had Clarence King and the three fisherman known that someone, even an Indian, had conquered the summit before they did, they might not have indulged in that memorable and bitter battle over the first ascent and the name that should be affixed to this, the highest mountain in the country.

Clarence King had his heart set on being the first to climb the mountain. On July 6, 1864, he climbed Mt. Tyndall, thinking he was climbing Mt. Whitney. He then saw his mistake and returned later that year but only "got to within 300 or 400 feet of the summit."

In 1871 he renewed the attack, this time from the south. He reached the summit of Mt. Langley in a thick bank of clouds and thought he had conquered Mt. Whitney. Two years later W. A. Goodyear and M. W. Belshaw rode mules to the summit of Mt. Langley and found King's mistake. They notified him and he promptly returned to California--but too late, as the fishermen had beaten him to the top by a month.

Since then, most of the popular interest in the Basin has centered in climbing Mt. Whitney. At first, the route to the top was from the Kern up Whitney Creek and the final ascent through the terrifying Devil's Chimney--one of the avalanche chutes on the west face. Later, trails were built up the west face and another up from the east and over Whitney Pass 13,335 feet. The latter trail was made necessary by the increased interest in making the summit a scientific observatory.

SCIENCE AND MT. WHITNEY

The first scientific party to use the summit was that led by the noted astronomer and physicist Prof. Samuel P. Langley, in 1881. At that time, there was the question of possible life on the planet Mars. So, Prof. Langley sought to ascertain if water vapor or oxygen was present in the atmosphere of either the moon or Mars.

His findings proved inconclusive, so another expedition occupied the summit in 1903. To help them, the citizens of Lone Pine built the trail and aided in the construction of the stone shelter at the top. This expedition was sponsored by the Smithsonian Institute, with Drs. Campbell and Abbott in charge. Their announced objectives were: "to continue Langley's work and redetermine the value of the solar constant; and secondly, to study the absorption lines due to water vapor and oxygen in the atmosphere of Mars and the Moon."

Incidentally, their final determination was: that "if there was any water vapor on Mars (and the Moon) it was very slight." They also established the height of Mt. Whitney at 14,502 feet. This has been lowered to just under 14,496 feet. Another interesting item they developed was that winter low temperatures on the summit went to -23°F.

They also accumulated a continuous record of the atmospheric humidity and found it ranging from 3 to 98 percent, with the highs at noontime and the lows between 2 and 5 a.m. These latter figures were to prove most valuable to this author when he occupied the summit for a week, studying the evaporation and melting of snow at high elevations.

The stone building on the summit ceased to be effective as a shelter after the storms and vandals had torn the doors and windows from their hinges. Its rooms became utterly uninhabitable when they became filled with snow, ice and rubbish. All of this was rectified last year when the building was cleaned out and new doors and windows attached, and even a small stove was placed in the kitchen.

Year after year, ambitious climbers from all over the nation come to conquer the peak. New trails and climbing routes have been devised. One early and amusing interlude in this parade to our highest point is the misadventure that befell quite a number of would-be conquerors. Armed with engraved proclamation of their assault, on metal plaques and wooden signs, they climbed out of the Kern Canyon and attacked the highest peak in sight. After a long struggle over scree and talus, they reached the summit of what was then known as Joe Devil's Peak. Mt. Whitney stared at them across two deep canyons and a high range--and still 1500 feet higher to go. It was a fine but ludicrous collection of metal and wood that a group of Sierra Club members picked up on the sheer side of this summit--where the disappointed climbers had thrown them.

EAST FACE OF WHITNEY

The east face of Mt. Whitney offers an almost endless assortment of routes for the climbers who specialize with ropes and pitons. It was on August 16, 1931, that Robert L.M. Underhill initiated our California climbers into the fine art of rope climbing and worked out the first route up this 1800 foot sheer wall. True, it offers plenty of exposure and at places some hazard--but throughout the rock is sound. Only those familiar with rope-technique should attempt these routes--of which there are now many.

By the regular trail, over 100 visitors make the top each month, during the summer. There is no record of the legions who start out but do not succeed. They are warned that it is 14 miles to the top. Some camp enroute at Mirror Lake. But universally they all make the mistake of getting started too late. If the distance doesn't get them, the altitude will. Our recommendation has always been (and still is after 15 nights on top) to take it leisurely and spend the night on top. The sunsets and sunrises are absolutely incomparable. And there is always a chance of witnessing the appearance of the weird "specter of Brocken."

William Colby took 108 members of the Sierra Club High Trip (1903) to the top. In 1949, we had 51 and 54 members from Base Camp, sleeping on the summit, on two different occasions. Orland Bartholomew was the first to climb the mountain in winter. That was accomplished in 1929 on the start of his epic solo ski trip from Whitney to the Yosemite. The winter ascent has been repeated several times since, and at least one man lost his life as the result. Two untrained boys lost their lives in a futile attempt on an "impossible" route up the East Face. These are infinitely small percentages when we reckon the number of persons who climb the mountain, and the possible hazards.

All of the other named and numbered peaks in the Basin have been climbed--many of them by several routes. The last of the 14,000 foot peaks in the region (and in California) to be conquered was Mt. Russell. Norman Clyde made it in 1926 and five new routes have been worked out since. This summer Jim Koontz added another new route when he and his party got Russell's north face.

This region will long remain good climbing territory for the technical climber, with hospitable timberline campsites and granite cliffs close by. For the out-of-doors man who enjoys new scenery, with a broad outlook--the Kern is his answer. But to get the full enjoyment, he should try to understand how all of these unusual features came to be.

SCENIC VIEW-POINTS

There are three vantage points that I would like to recommend to those who are curious and will take the time to stop and ponder at the marvels of nature and what she has wrought during the last hundred million years.

For the visitor coming in from the north, take the easy little scramble onto point 12,236, a mile northeast of the junction of Milestone Creek and the Kern River. From there, one can identify the remains of the ancient Eocene folds and visualize the eons of time it took to lay out the broad terraced plateaus as they step back to the high rims on both sides. And, from there we get the full import of that deeply incised gash bisecting the vast, forested landscape with its dim horizon fading far away in the south. Many are the questions that will crowd in to demand an answer. I hope that I have supplied the basis for some possible answers.

For the visitor on the east side of the Basin, I recommend that unique "balcony-view-point" the readily accessible summit of Mt. Guyot. There one can sit, in the very center of the Basin, overlooking the depths of the canyon. From that vertical point, one can look directly up the canyon and down. From there he faces the full expanse of the Crest toward the east and then turning about, he can get a similar panorama of the Great Western Divide. From there he can get the full measure of the tremendous amount of erosion accomplished by the irresistible combined forces of water and ice. And finally, as the visitor comes off Guyot's sloping shoulder, he will pass through a jungled maze of old weathered monoliths (the ancients revered them as sacred Menhirs) and there you cross into the finest Foxtail forest in the world.

For the visitor coming in from the west, my suggestion is that he climb the easy slopes of Kaweah Mt. There, dropping away before and back of him are the two deep chasms of the Great Arroyo and the Kern Canyon. Both remind him of the "ancient folds" and the pattern they left behind. From there he can readily look into the lateral valleys coming off the Crest and see where the glaciers died behind their morainal mounds as they emerged. From this summit, which is practically on a level with all of the high points on the Crest and Divides, he can get one of those 360° panoramas of a ragged silhouette that can be matched nowhere else. From there, too, he can look along the jagged sawtoothed edge of the Kaweah range--and wonder how these sheer pinnacles have managed to stand there without toppling over.

And finally, we come to the great climax--the summit of Mt. Whitney. We do not recommend it solely for its view--which, of course, is most comprehensive--but because there one can get these extraordinary views at a time when they are breathtaking--at sunset and at sunrise.

Perhaps the thing that impresses the sunset-visitor most is the variety of effects and colors, and their kaleidoscopic variations--each demanding to be photographed. Words were not made that can describe the play and interweaving, the lights and shadows, as the sun first leaves the hazy outlines of the Nevada ranges far to the east. There, all is pale mauve and lavender. Then the ghostly shadow climbs out of the deep Owens Valley and slowly creeps up the gray face of the Inyo Range and on into the haze above. There the purple shadow hovers against its orange background and--when conditions are right--suddenly appears The Specter of Brocken--the giant shadow of our own persons, superimposed on the shadow of the mountain. And if we can overcome our sudden awe, and wave our arms over our heads--we can produce a luminous halo to encircle our shadows.

If we still want more, we can then turn to the west where dark purple shadows are seeking out each deep canyon and orange highlights are tipping each pinnacle and peak--where the Great Western Divide stands forth as a clean-cut black silhouette against a lacquered sky of brilliantly burnished gold. And the focal point in the midst of it all--the great, flame-red ball of the sun, sinking slowly behind the edge of the world. Suddenly, it's gone--and the chill of the night sends us to our bags to ponder what kind of a world this is--so different and yet so near to our everyday life.

SIERRA CLUB BASE CAMP
Bear Creek
First Period, July 4 to 17, 1954

Frank J. Bailey	1135 W. Seaside Blvd., Apt. 16 Long Beach 2
George R. Becker	USS WASHBURN (AKA 108) c/o FPO S. F.
Janice Becker (Mrs. Geo. Becker)	9030 Grossmont Blvd., La Mesa, Calif.
Newton H. Bell	46 Kearny Street, San Francisco 8
D. M. Belmont	55 Merced Avenue, San Francisco 27
John Belmont	" "
Peter Belmont	" "
Bernice F. Boyd	Box 125, Campa, San Diego Co., Calif.
Donald Bull	50-5th Avenue, San Francisco 18
Mildred J. Carlson	2501-34th Avenue, San Francisco 16
Dorothy Coleman	2874 Union Street, San Diego 1
Maryline Conrey	1633 Rockwood St., Los Angeles 26
Rena McCoy Davidson	305 South Oak Knoll Ave., Pasadena, Calif.
Glen Dawson	141 Anita Drive, Pasadena 2, Calif.
Mary Helen Dawson	" "
Karen Dawson	" "
Keith Dawson	" "
Susan Dawson	" "
W. B. Evans	Box 138, Rt. 1, Mill Valley, Calif.
Mrs. W. B. Evans	" "
Zella Flenniken	2490 Olive Street, San Jose 28
Roberta Ford	4710 Somerset Drive, Riverside, Calif.
Ivy B. Foster	2606 Fairfield Street, San Diego 10
L. H. Gilmore	3517 Rowland Ave., Burbank, Calif.
Gerald Glass	8290 Gordon Road, Castro Valley, Calif.
Ginny Glass	" " "
Elsa M. Gluckert	820 Ashbury Street, San Francisco 17
Carolynn Hartley	1933 Berkeley Way, Berkeley, Calif.
Walter Heninger	1442 Mt. Pleasant St., Los Angeles 42
Angie H. Irwin	349-12th St., San Jose 12
Edgar M. Kahn	2754 Vallejo Street, San Francisco
Kenneth Kahn	" "
Helen S. Kemnitzer	2510 Bancroft Way #217, Berkeley 4
Richard Lang	717 West Wilson Ave., Glendale 3
W. J. Lanquist	c/o Bishop National Bank of Hawaii, Kahului, Maui, T. H.
Edna L. Laumann	1325 Third Avenue, San Francisco 22
Mike Loughman	1028 East Main Street, Ventura, Calif.
Jean Love	3962 Goldfinch St., San Diego 3
Jean E. McNee	230 Cambridge Avenue, Berkeley 8
G. Eugene Miller	4855 Beaumont Drive, La Mesa, Calif.
Rachel L. Miller	" " "
Pauline V. Monroe	1933 Berkeley Way, Berkeley, Calif.
Sue Ann Murphy	914 Rosemount Road, Oakland, Calif.
Juliane Muus	3140 Clay Street, San Francisco

Ethel F. Nelson	4734 Somerset Drive, Riverside, Calif.
John P. O'Neill	216 E. Evergreen Ave., Philadelphia 18
Dorothy Parker	2324 Blake Street, Berkeley, Calif.
Daniel M. Popper	712 Muskigum Ave., Pacific Palisades, Cal.
Catherine S. Popper	" "
Roger B. Popper	" "
Betty Ramseier	2813 Parker Street, Berkeley 4
Roy E. Ramseier	" "
Joy L. Reid	1812 Grevelia Street, So. Pasadena, Cal.
Richard T. Reid	" "
J. P. Rihn	2226 Wilcox Avenue, Richmond, Calif.
Mary A. Rihn	" "
Judy Rowe	1112 Oak Avenue, Atwater, Calif.
H. A. Seeberger	2870 Vieja Drive, Santa Barbara, Calif.
John Shayman	14781 Dalman, Whittier, California
Margaret F. Simcock	12937 Addison Street, Van Nuys, Calif.
Ruth Dee Simpson	840 Fairfield Circle, Pasadena 5, Calif.
Ruth Price Simpson	" "
Karen Sorensen	118 Bancroft Road, Burlingame, Calif.
Morris Sorensen	" "
Margaret Sosnowski	16 E. Market Street, Long Beach 5, Cal.
Lillie Stanley	1340 Linden, Fresno 4, Calif.
Catherine Tarnowsky	815 Pierce Street, San Francisco 17
Ivan Tarnowsky	" "
Vivian Tow	467 Forest, Palo Alto, California
Jocelyn Tyler	2339 Ward St., Apt. #8, Berkeley 5
F. Lowry Wadsworth	541 Woodbury Road, Glendale 6, Calif.
Minnie Wadsworth	" "
Paul L. Wadsworth	" "
A. J. Whitney	735 Grove Avenue, Ukiah, Calif.
Aileen Whitney	" "

July 4 to August 14, 1954
COMMISSARY PERSONNEL

SIERRA CLUB BASE CAMP

Bear Creek

July 4 to August 14, 1954

COMMISSARY PERSONNEL

	July 4-17	July 18-31	Aug. 1-14
Dean Curtis, 10216 S. LaSalle Ave., Los Angeles 47		x	
Marcella Curtis " "		x	
Sherwin Dorris, 1632 Loma Crest, Glendale	x	x	x
Wm. Dorris, " "		x	
Wm. B. Evans, Box 138, Route #1, Mill Valley		X	
Peter Friedrichsen, 805 E. 65th St., Inglewood	x	x	x
Wayne Harfhbarger, 2203-92nd Ave., Oakland	x	x	x
Dr. Margaret Jones, 2408 Sleepy Hollow Drive Glendale		x	
Oliver Kehrlein, 71 Jordan Ave., San Francisco 18	x		
Clare McGee, 117 "B" St., Davis		x	
Scudder Nash, 320 Marathon Road, Altadena		x	
Peter Raven, 69-26th Avenue, San Francisco 21	x		x
Dr. Richard Rihn, 540-38th St., Richmond			x
Elizabeth Smith, 36 Las Vegas, Orinda		x	x
Jeff Smith " "	x	x	x
E. (Ned) G. Thompson, 6508 Dempsey Ave. Van Nuys	x		x
Wm. Wallace, 3613 Palos Verdes Drive, No. Palos Verdes			x
R. C. Youngquist, 2818 Effie Street, Los Angeles 26		x	x

Sierra Club Base Camp
Bear Creek
Second Period July 18 - 31, 1954

Abeel, Edwin A.	1641-39th Street, Sacramento
" Mary P.	" "
Agoston, George A.	1427 East Orange Grove, Pasadena 7
" Grete	" "
" Max K.	" "
Banchero, Anne	808 No. Claremont Street, San Mateo
Barrett, Barbara F.	344 Tennyson Avenue, Palo Alto
" Fadeley	" "
Benton, Ralph	1155½ South Bundy Drive, Los Angeles 49
Berger, David	4101 Timber Lane, Philadelphia 44, Pa.
" Harriet	" "
" Daniel	" "
" Jonathan	" "
Borland, Marjorie K.	#5 - 2335 Parker St., Berkeley 4.
" Stephanie	2335 Parker Street, Berkeley
Borthwick, Donald	2702 Waverley Street, Palo Alto, Calif.
" Mrs. Donald	" "
" Russell	" "
" Shirley	" "
Campbell, Harry E.	529 E. 16th Ave., San Mateo, Calif.
Carlson, Richard	9405 Brighton Way, Beverly Hills, Calif.
Clayton, James O.	685 Oberlin Avenue, Berkeley 8
" James L. Jr.	" "
" Susan E.	" "
Clever, Maria M.	2658 Webster Street, San Francisco 23
" Nikki	" "
Conn, Glenn L. Jr.	2316 Edith St., El Cerrito 9, Calif.
" Margaret	" "
" Barbara	" "
Davies, Agatha	2317 Bancroft Ave., Los Angeles 39
" Bill	" "
De Benedetti, Jane	33 Hollins Drive, Santa Cruz, Calif.
De May, George B.	504 E. Oak Avenue, El Segundo, Calif.
" Maybelle	" "
" Anita	" "
" Billy	" "
" Tommy	" "
Evans, Edward R.	2551 Catherine Road, Altadena, Calif.
" Margaret	" "
" Susan	" "
" Murphy	Box 138, Rt. 1, Mill Valley, Calif.
Feild, Miriam	1440 Clay Street, San Francisco
Finch, Harry de V.	137 Ardmore Road, Berkeley 7
" Elizabeth	" "
" John	" "
Franke, Norman P.	9916 Golf Links Road, Oakland 5
" Evelyn C.	" "
" Donald L.	" "
" Elaine P.	" "
Frishman, Harry D.	620 Devon Place, Long Beach, Calif.

	Kentfield, Calif.
Gibson, Helen M.	515 Chaucer St., Palo Alto, Calif.
Golay, David E.	737 Hunter Drive, San Gabriel, Calif.
" Sally W.	" " "
Golding, Fred.	1722 Marengo, South Pasadena, Calif.
" Jeanne	" "
" Grant	" "
Hagerty, Edna F.	P. O. Box 57, Sunland, Calif.
Hall, Donald A.	3330 Xenophon St., San Diego 6.
" Elizabeth E.	" "
Hammond, Charles W.	641 Santa Anita Avenue, San Marino, Cal.
" Mrs. Charles W.	" "
" Joseph W.	" "
Henstra, Marianne	1338 North Alexandria Ave. Los Angeles 27
" Heidi	" "
Jenkins, Jocelyn	3645 Telegraph Ave. Oakland 9, Calif.
Johnson, Shepard M.	343 San Carlos Ave., Piedmont 11, Calif.
" Helen S.	" "
" Judy	" "
" Shepard Jr.	" "
Kahn, Kenneth	2754 Vallejo Street, San Francisco
Kelley, Clinton M.	24421 Summerhill Ave., Los Altos, Calif.
" Virginia A.	" "
" Joan	" "
Liotta, Helen H.	Rt. 1, Box 524 C, Grass Valley, Calif.
" Leonard	" "
Logan, Inez	2626 Benvenue Ave., Berkeley 4
" Orwell	842 The Alameda, Berkeley 7
Long, Robert W.	70 Latham Lane, Berkeley 8
" Kathryne H.	" "
" John David	" "
" Henry	" "
" Peggy Joanne	" "
Loosley, George M.	1716 Calle Cerro, Santa Barbara, Calif.
Lynn, Gault W.	715 Florales Drive, Palo Alto, Calif.
" Margaret G.	" "
" Nancy	" "
" Susan	" "
Martin, James N. Jr.	632 Woodhams Lane, Santa Clara, Calif.
Massie, Mark	2001 Sharon Road, Menlo Park, Calif.
Mayer, Henry	372 Kings Mt. Road, Woodside, Calif.
" Olive	" "
" Bobby	" "
" Judy	" "
Meara, Louis	526 Occidental Avenue, San Mateo
" Helen	" "
" Alice	" "
" Hannah	" "
Mitchell, Gay	846 Commonwealth Ave., Venice, Calif.
Norwood, Jackson	2140 Pine Crest Drive, Altadena, Calif.
" Lenore	" "
" Jaclyn	" "
" Stephen	" "

Parker, Dorothy	2324 Blake Street, Berkeley, Calif.
Pashgian, Adam J.	2052 Pinecrest Drive, Altadena, Calif.
" Margaret E.	" "
" John W.	" "
Petti, Suzanne	17 Hollins Drive, Santa Cruz,Calif.
Pockman, Leonard	164 Jordan Avenue, San Francisco, Calif.
" Aline	" "
" Jack	" "
Polsdorfer, Joan	P. O. Box 424, Ross, Calif.
" Rickey	" "
Porter, Andrew O.	1725 Milan Ave., So. Pasadena, Calif.
" Louise	" "
" Carlos	" "
" Tom	" "
Raab, Harry J.	6420 Regent St., Oakland 9, Calif.
Rau, Jean	c/o Fred H. Smith, 21 Rancheria Road, Kentfield, Calif.
Richards, Don	14828 Nelson Way, Los Gatos, Calif.
Riffel, Lydia	4201 Edgehill Drive, Los Angeles 8
Sanders, Kenneth E.	12033 Samoline Lane, Downey, Calif.
Scales, James R.	370 Arroyo Terrace, Pasadena 3, Calif.
" Mrs. James R.	" "
" Jimmy	" "
" Sally	" "
Schairer, Robert	11750 Chenault St., Los Angeles 49
" Mary	" "
" Cathy	" "
" Lissa	" "
Schuyler, Barbara	c/o California Poly, Box 194, San Luis Obispo
Shanks, Henry O.	6813 Hannon St., Bell Gardens, Calif.
" Helen J.	" "
" Kenneth R.	" "
Sharsmith, Helen K.	1630 Chestnut St., Berkeley 2, Calif.
" Linnea	" "
Smith, Fred H. IV	21 Rancheria Road,Kentfield, Calif.
" Dan	" "
Sperling, Milton H.	1709 Milan Ave., So. Pasadena, Calif.
" Elizabeth B.	" "
" Suzanne	" "
Spiller, Dr. E. B.	Box 918, Kentfield, Calif.
" Caroline	" "
" Jane	" "
" Steven	" "
" Susan	" "
Talbot, M. W.	2590 Cedar Street, Berkeley 8
" Zenaida M.	" "
" Zee Zee	" "
Thomas, Shirley	52 El Camino Real, Berkeley 5
Tonkin, Charles J.	1810 Fulton Street, Palo Alto, Calif.
" Grace Lee	" "
" Bill	" "
" C. David	" "
" Penny	" "

Van Etten, H. B.	6415 Regent Street, Oakland, Calif.
Walley Roy S.	221 Alvarado Avenue, Los Altos, Calif.
" Doris K.	" "
" Rita Ann	" "
Wolff, Warren	319 Ross Drive, Mill Valley, Calif.
" Alice	" "
Wyckoff, James A.	P. O. Box 960, Watsonville, Calif.
" Elizabeth	" "
" Stephen	17 Pasatiempo Drive, Santa Cruz, Calif.
" Jean	" "
" Ann	" "
" Katherine	" "
" Nick	" "
" Susan	
Young, Julius E.	1333 Las Juntas Way, Walnut Creek, Calif.
" Verna E.	" "
Youngquist, Charlotte	2818 Effie Street, Los Angeles 26

SIERRA CLUB BASE CAMP

Bear Creek

Third Period August 1 to 14, 1954

Aiken, Ruth E.	117 South Ave., 49, Los Angeles 42
Amemiya, Masako	P. O. Box 29, Tracy, California
Arens, Lois E.	450 Sutter St. #1300, San Francisco 8
Auerbach, Kay	1710-A Grant, Berkeley 3, Calif.
Barr, Dr. James A.	230 Sandringham Road, Piedmont, Calif.
" Mary Ellen	" "
" Gail	" "
" James A. Jr.	" "
Biggers, Edith	1515 Alta Vista Road, Santa Barbara
Bordewich, Grace	214 Curry St., Carson City, Nevada
" Nancy	" "
Boynton, Judd E.	567 Panoramic Way, Berkeley 4
Bradley, Barbara	2621 Divisadero Street, San Francisco 23
Burr, Harriette	2028 Heatherdale Ave., San Jose 26
Chay, Marian C.	1200 Oak Street, San Francisco 17
Cone, Elizabeth F.	744 El Camino Real, Burlingame, Calif.
Dahl, Vivian	1040-14th Street, San Francisco, Calif.
Daler, Dessie L.	4515½ Mont Eagle Place, Los Angeles 41
Dorrance, J. R.	929 So. Broadway, Los Angeles, Calif.
" J. Michael	" "
Eisenmann, Don J.	538 San Menito, Menlo Park, Calif.
Elder, Scott	1965 San Antonio, Berkeley, Calif. 7
" Madeline	" "
Etzler, Dorr H.	1167 Monticello Road, Lafayette, Calif.
" Louise	" "
" Cheryl Ann	" "
" Richard	" "
Faust, William F.	4750th Base Service Sqdn. Yuma County Air Port, Yuma, Arizona
Fox, Ginger	2008 Berkeley Way, Berkeley, Calif.
French, Samuel	74 Otis Street, San Francisco, Calif.
Friedman, Sidney	525 No. Rodeo Drive, Beverly Hills, Cal.
Gardner, Marjorie B.	5229 Marathon St. Apt. #1, Los Angeles 38
Gates, Ada	317 S. Ave. 60, Los Angeles 42, Calif.
" Elmer	" "
Glasser, Alan J.	9844 Vidor Drive, Los Angeles 35
" Mrs. Alan	" "
Greiner, Robert H.	2711 West 74th St., Los Angeles 43
Gridley, Geraldine A.	4029 Oakwood Avenue, Los Angeles 4
Grove, John	1450 Stannage Avenue, Berkeley 2
" Lillian Walli	" "
" Douglas	" "
Hanson, Clarence A.	1021 Fair Oaks Ave., Alameda, Calif.
" Louanna D.	" "
" Carol E.	" "
Harvey, Donna M.	2665 Chestnut St., San Francisco 23
Henningsen, Hilda	1315 S. Charles St., Alameda, Calif.
Herman, Mary	1414-5th Ave., San Francisco, Calif.

Herr, Gail Katharine	Pond Farm, Guerneville, Calif.
Herrick, June L.	Berry Lane, Ross, California
Holbrook, Bradley K.	765 San Luis Road, Berkeley 7
" Katherine H.	" "
" Frederick S.	" "
" Mary Jeanne	" "
" Wales R.	444 Pimiento Lane, Santa Barbara, Calif.
Hubbard, Helen F.	394 Wyola St., Santa Barbara, Calif.
Ilfeld, Frederic W.	436 No. Roxbury Drive, Beverly Hills, Cal.
" Thomas	" "
" David	" "
Irons, Rollin H.	512 Medico Dental Bldg., San Jose 13
" Madeline	" "
Izett, N. C. W.	P. O. Box 8, Lafayette, Calif.
" Kay	" "
" Mary Kay	" "
" David	" "
Jaekel, Norma	1534 Taylor St., San Francisco
Johnson, Dorothy L.	1124 Amador Ave., Berkeley 7
Klundt, Frieda R.	238 W. Fulton, Stockton, Calif.
Knight, Charlotte	760 Grizzly Peak Blvd., Berkeley 8
" Tony	" "
Kopriva, Mary Coline	1810 Euclid Ave. #11, Berkeley 9
Kutzen, Leona	1645 Filbert St., San Francisco 23
L'Esperance, Raymond G.	207 Sycamore Ave., Mill Valley
" Ruth	" "
Lewis, Maxine J.	287 Ave. C. (Apt. 6A) New York City, N.Y.
Lockwood, Elizabeth	775 Geary St., San Francisco 9
Lovering, Stella	3617 Crestmont Ave., Los Angeles 26
Luse, Margaret	1401 Jones St., San Francisco 9
Marcellini, Dale	1024 Willow Drive, Lafayette, Calif.
McConnell, F. Wright	2945 Kellogg St., San Diego 8
McElligott, Ella	#4 Manor Road, San Rafael, Calif.
Miller, Robert J.	1151 Glen Road, Lafayette, Calif.
" Elizabeth A.	" "
" Carol A.	" "
" Diana L.	" "
" Jean L.	" "
Moehlman, Dorothy	534-20th St., Hermosa Beach, Calif.
" John H.	" "
Morrey, Charles	210 Yale Ave., Berkeley 8
" Frances	" "
" Carolyn G.	" "
" Robert A.	" "
" Walter T.	" "
Mors, Charles W.	128 Highland Boulevard, Berkeley 8
" Harriet	" "
" Marian	" "
" George	" "
Parker, Dorothy	2324 Blake St., Berkeley, Calif.
Pattullo, June G.	2227 Felspar, San Diego 9
Pearlman, Harry	9721 Calmada Ave., Whittier, Calif.
" Mrs. Harry	" " "
Pike, Roy M.	2700 Union St., San Francisco

Regan, Mary C.	420 So. Santa Cruz, Modesto, Calif.
Reimers, Ann B.	Canyon Ranch, Lemoncove, California
Roberts, John M.	1200 Balfour Bldg., San Francisco
Scaparone, Mirra	1803 Jones Street, San Francisco
Schwartz, Walter	1554-21st Avenue, San Francisco 22
Seliger, Mathilda	1931 Grant Avenue, San Francisco
Sorem, Stanley S.	22 Snowberry Lane, Orinda, Calif.
" Hilga B.	" "
" Gail	" "
" Mike	" "
Southam, Agnes B.	500½ Mound Avenue, So. Pasadena, Calif.
Stanislawski, Dan	100 Laurel Lane, Austin, Texas
" Doris Barr	" "
" Anna	" "
Stephens, Ruth	1703½ Glencoe Way, Glendale, Calif.
Strong, Elizabeth	2227 Felspar, San Diego 9
Thompson, Helen B.	6508 Dempsey Ave., Van Nuys, California
Tudbury, Patricia	311 S. Floral St., Visalia, Calif.
Vogel, Barbara E.	2730 Belrose Ave., Berkeley 5
" Peter	" "
Wallace, Virginia	3613 Palos Verdes Dr. No. Palos Verdes Calif.
Wilson, Lyta W.	315 Allen Ave., Glendale 1, Calif.
Yancey, Alice	5144½ De Longpre Ave., Los Angeles

SIERRA CLUB BASE CAMP
Whitney-Crabtree Lakes
July 18 - 31, 1954

Miriam Anderson	8998 Johnson Drive, La Mesa
George B. Baldwin	1874 San Juan Ave., Berkeley 7
Barbara M. Barnes	45 N. 8th St., San Jose
Helen R. Blasdale	406 University Ave., Davis
William E. Carder	1062 Fairview Ave., San Jose
Emma E. Carder	"
Bobbie Carder	"
Donald Carder	"
Richard Clow	4105½ Ingraham St., San Diego 9
Jane Collard	757 Fourth St., El Cajon
Andrew D. Crofut	1635 Davidson Way, Reno, Nevada
Rosemary B. Crofut	"
Catherine Feeney	3336 Laguna St., San Francisco
Morris Feinleib	804 Laurel Ave., Menlo Park
James O. Fenton	960 North 5th St., San Jose 12
L. R. Flicker	2633 Moorpark Ave., San Jose
Barbara K. Gilmer	507 O'Keefe St., Menlo Park
Bent Graust	787 San Antonio Road, Palo Alto
Robert A. Gray	86 El Camino Real, Berkeley 5
Fred C. Hagist	Box 189, Perkins
Mrs. Fred Hagist	"
Daniel L. Hatch	700-A Raleigh, Norfolk, Va.
John D. Hatch III	"
Gladys Janoff	Rt. 1, Box 239, Mill Valley
Max Janoff	"
Thayer S. Jones	P. O. Box 366, Berkeley
Helen S. Kemnitzer	2510 Bancroft Way #217, Berkeley 4
Richard B. Kennedy	1741 Middlefield Road, Palo Alto
Mary B. Kennedy	"
Bruce B. Kennedy	"
David D. Kennedy	"
Jane Kennedy	"
Nadine A. Kolbe	5215 Florinda, Temple City
Richard Lang	717 West Wilson Ave., Glendale 3
W. J. Lanquist	c/o Bishop Nat'l Bank, Kahului, Maui T. H.
Norv La Verne	926 Hugo Reid Drive, Arcadia
Jo Anne La Verne	"
Denise La Verne	"
Meredith La Verne	"
Renate Lenel	6548 Farallon Way, Oakland 11
Michael L Loughman	1028 East Main St., Ventura
John Marx	107 Hedge Road, Menlo Park
Julianne M. Marx	"
Joseph T. McFarland	478 Wickson Ave., Oakland 10

Betty J. Miller	2414 - 89th Ave., Oakland 5
C. Carl Miller	"
Stephen Miller	2651 Tuller Ave., El Cerrito
Clare Millikan	60 Kingston Road, Berkeley 7
George Millikan	"
Mark Millikan	"
Richard Millikan	"
Gerald Nitzberg	2291 Bowdoin St., Palo Alto
Frances Orr	2307 Harvard St., Palo Alto
Roy E Paine	919 E. Philadelphia St, Whittier
Charles J. Perzyk	2166 Pine St., San Diego 3
Phyllis Porter	116 Parkside Drive, Berkeley
G. Thomas Robbins	Dept. of Botany, U.C., Berkeley 4
Stephen H. Roper	1452 Scenic Ave., Berkeley 8
Ramona Ross	850 Roxbury Drive, Pasadena 7
Daniel Rothermel	309 Yale Road, Menlo Park
John W Shayman	14781 Dalman, Whittier
Gregory Voge	1814 Hearst Ave., Berkeley 3
Philip Webster	2 Hillcrest Court, Berkeley 5
Dr. Douglas Wendt	1115 Laurie Ave., San Jose
Katherine Wendt	"
Marilyn Wendt	"
Phyllis Wendt	"
Richard Wendt	"
Kara S. Whitcher	1071 Lombard St, San Francisco
Frits Wynhausen	254 - 19th St., Santa Monica
Commissary:	
Ed Breitwieser	945 Contra Costa Drive, El Cerrito
Oliver Kehrlein	71 Jordan Ave., San Francisco 18
James Koontz	Garrison Rd., Owings Mills, Maryland
Dr. Rosemarie Lenel	6548 Farallon Way, Oakland 11
Peter Raven	69 - 26th Ave., San Francisco 21
Hervey Voge	1814 Hearst Ave., Berkeley
Paul Wadsworth	541 Woodbury Rd., Glendale 6

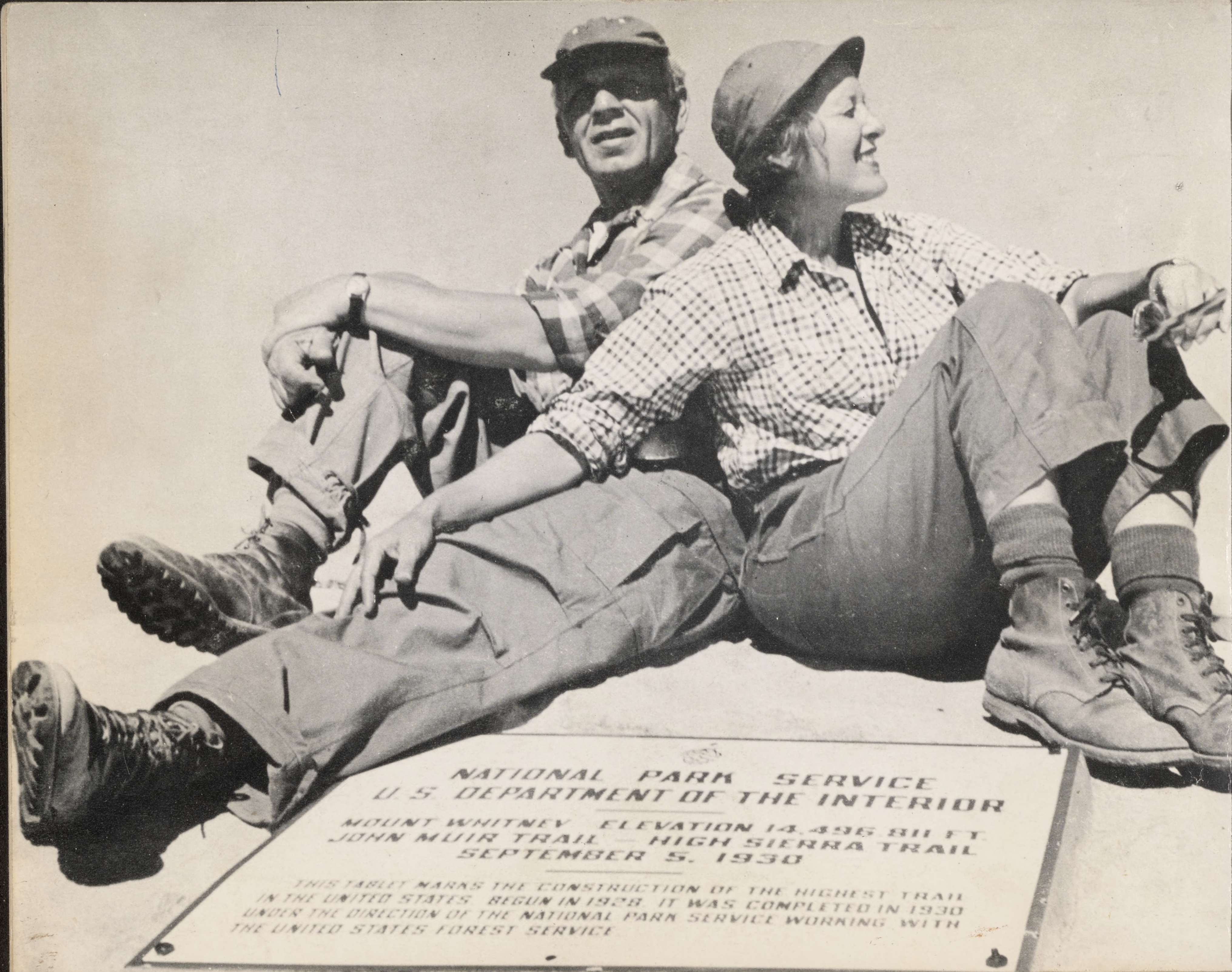
SIERRA CLUB BASE CAMP
Three Sisters -- Oregon
August 8 - 21, 1954

Stanley Adam	Rt., 1, Box 10, Scappoose, Oregon
Katherine Adam	"
Walter Adam	"
Barbara Arney	80 - 7th Ave., San Francisco 18
Elsa B. Bailey	1725 Turk St., San Francisco 15
Ann Barns	2477 Washington St., San Francisco 15
Ragnhild A. Boysen	911 N. Atlantic, Alhambra
Gudrun Brask	1305 Seneca St., Seattle 1, Wash.
Rita Canessa	Rt. 1 Box 852, Stockton 5
Dr. George E. Cassady	3810 Fairway Blvd., Los Angeles 43
Margaret E. Cassady	"
George Cassady, Jr.	"
Robert Cassady	"
Marie Chabaud	1155 Leavenworth, San Francisco
Cicely M. Christy	2853 Shasta Road, Berkeley 8
Sullivan Cooper	4468 Madison Ave., Fresno 2
Frank N. Corbelli	433 Teresita Blvd., San Francisco
Jerome Cramer	761 Spruce St., Berkeley 2
Janice Cramer	"
Randy Cramer	"
Esther Crites	51 Florence St., San Francisco 11
Roy Crites	"
Carolyn Crowley	120 Shrader St., San Francisco 17
Murphy Evans	Box 138 Rt. 1, Mill Valley
W. B. Evans	"
Ernest Fast	100 Coronet Ave., Mill Valley,
James Field, Jr.	160 San Felipe Way, San Francisco 27
June Gellerman	3927 Woodruff Ave., Oakland 2
Anne Goldstine	598 - 29th Ave., San Francisco 21
Robert M. Gottsdanker	1814 Prospect, Santa Barbara
Josephine S. Gottsdanker	"
Anne Gottsdanker	"
Gerald Gottsdanker	"
Marjorie Grove	405 - 36th Ave., North, Seattle 2, Wash.
Nancy Haggerty	2031 Redbush Terrace, San Jose 26
James H. Hampton	623 B Detroit Ave., Concord
Sumi Haramaki	2112 - 22nd St., San Francisco
C. K. Herr	210 Avila Road, San Mateo,
Mildred Holota	80 - 7th Ave., San Francisco 21
Herman L. Horn	520 So. Bayview, Sunnyvale
Alice E. Horn	"
Katherine M. Horn	"
Jean Pierre Imhof	International House, U.C., Berkeley 4
Diana Jensen	2036 - 22nd St., San Francisco
Robert A. Johnston	2834 Whittier Blvd., Los Angeles 23
Louis C. Jukich	2 Pacheco St., San Francisco 16
Roland R. Leslie	1403 Linda Rosa Ave., Los Angeles 41
J. C. Lewis	1 Harvard Circle, Berkeley 8
Ruth Stocking Lynch	963 Stonehill Lane, Crestwood Hills, L.A.
Beth MacBride	3015 - 25th Ave., San Francisco 27
James W. MacBride	"

Nancy MacCabe	26 Prescott Court, San Francisco 11
John E. Meeker	1645 Hopkins St., Berkeley 7
Dorothea Mendenhall	530 Kellogg, Palo Alto
Constance Menzies	Inverness
Louise C. Million	2905 Van Ness Ave., San Francisco
Clarence Neumeier	507 Sturm St., Walla Walla, Washington
Katherine Neumeier	"
Carrye Opton	1920 Sacramento St., San Francisco 9
Frances Payne	2820 San Jose Ave., Alameda
Patricia Popp	P. O. Box 897, Los Gatos
Hazel Quasdorf	529 N. 29th, Corvallis, Oregon
Mildred Quasdorf	"
Anna M. Roth	2366 - 25th Ave., San Francisco 16
Victor H. Rowe	100 Homestead Blvd., Mill Valley
John P. Schagen	47 Levant St., San Francisco 14
Vivian Schagen	"
Laura M. Smith	160 Marina Vista, Larkspur
Malcolm G. Smith	"
Eleanor Stackhouse	675 Calle Miramar, Redondo Beach
Bruce Stackhouse	"
Larry Stackhouse	"
Stephen Stackhouse	"
Jean Sullivan	2635 Dwight Way, Berkeley
Joanne Taylor	3 Green Place, Walnut Creek
Bernward Thorsch	12174 Ventura Blvd., Studio City
Ethel Unselt	286 Sagamore St., San Francisco 25
William Van Herick	1320 Carmelita Ave., Burlingame
Louise Van Herick	"
Norman Van Herick	"
Robert Van Herick	"
Donnel N. Williams	3204 N. E. 46th Ave., Portland 13, Ore.
Clarence M. Wolcott	134 Yale Ave., Mill Valley
Allene M. Wolcott	"
Carol Wolcott	"
Christopher C. Wolcott	"
William D. Young	Blue River, Oregon

Commissary:

Dr. Leona Bayer	2535 Vallejo St., San Francisco
Oliver Kehrlein	71 Jordan Ave., San Francisco 18
William Pope	308 Laurel St., San Francisco
Al Schmitz	406 S. E. 69th St., Portland 16, Ore.
Dr. Ernst Wolff	2535 Vallejo St., San Francisco


NATIONAL PARK SERVICE
U.S. DEPARTMENT OF THE INTERIOR
MOUNT WHITNEY ELEVATION 14,496.811 FT
JOHN MUIR TRAIL — HIGH SIERRA TRAIL
SEPTEMBER 5. 1930
THIS TABLET MARKS THE CONSTRUCTION OF THE HIGHEST TRAIL IN THE UNITED STATES. BEGUN IN 1928. IT WAS COMPLETED IN 1930 UNDER THE DIRECTION OF THE NATIONAL PARK SERVICE WORKING WITH THE UNITED STATES FOREST SERVICE